SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CHARLESTON, SC

# *GUIDE FOR ARCHITECT - ENGINEER FIRMS PERFORMING SERVICES FOR THE SOUTHERN DIVISION NAVAL FACILITIES ENGINEERING COMMAND CHARLESTON, SC*

**SOUTHNAVFACENGCOM P-141 (JANUARY 1995)**
**INCLUDING CHANGE 1 (SEPTEMBER 1995)**
**CHANGE 2 (MAY 1996)**
**CHANGE 3 (APRIL 1997)**
**CHANGE 4 (NOVEMBER 1998)**
**CHANGE 5 (MAY 1999)**

**SOUTHNAVFACENGCOM A-E GUIDE (JAN 1995)**
**RECORD OF CHANGES**

| CHG. NO. | DATE OF CHANGE | DESCRIPTION |
|---|---|---|
| 1 | Sep 1995 | Revised page iii; Added page 11-39. |
| 2 | May 1996 | Revised pages iii, 6-1, 6-2, 8-1, 9-1, 10-2, 10-3, 11-7 thru 11-9, 11-11, 11-15, 11-24, 11-26, 11-39, 13-3, 15-1 thru 15-4, 18-3, and 18-5; Added pages 11-40 and 11-41. |
| 3 | April 1997 | Revised pages ii, iii, 3-1 thru 3-3, 8-1 thru 8-4, 10-4 thru 10-6, 11-3 thru 11-6, 11-14, 11-20 thru 11-23, 11-36, 11-38, 13-1 thru 13-6, 18-2, and 18-3; Added pages 10-7, 10-8, 11-42, 11-43, and 13-7. |
| 4 | Nov 1998 | Revised pages ii, 11-1, 11-3, 11-4, 11-11 thru 11-14, 11-17, 11-18, 11-28, 11-31, 11-32, 11-34 thru 11-36, and 18-2; Added pages 11-1a, 11-1b, 11-4a, 11-4b, 11-14a, and 11-14b. |
| 5 | May 1999 | Revised pages 11-4, 11-4b, and 11-19. |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

# FOREWORD

1. This ***publication provides guidance*** to Architect-Engineer (A/E) firms performing services for the Department of the Navy, Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM). This Twelfth Edition of the Architect/Engineer Guide supersedes the Eleventh Edition (January 1994). The Guide will be maintained by issuance of changes as necessary. Consequently, this edition is issued with removable fasteners for easy page removal and insertion of amended pages.

2. The ***purpose of this publication*** is:

   a. to provide detailed and specific information on the requirements outlined in the Statement of Work;
   b. to supplement SOUTHNAVFACENGCOM Technical Guides and Naval Facilities Engineering Command instructions and design requirements;
   c. to present a clear understanding of our administrative procedures;
   d. to obtain uniformity of drawings, specifications, and cost estimates;
   e. to minimize the time spent by Navy and A/E personnel on essential administrative details and focus attention on the technical content of the design product.

3. Southern Division, Naval Facilities Engineering Command practices a quality philosophy which promotes teamwork and partnership with our customers and suppliers and emphasises continuous improvement, innovation, and customer satisfaction. A/Es are strongly encouraged to adopt and apply these principles and to work in partnership with us to provide quality facilities for our mutual benefit.

REVIEWED AND APPROVED:

SIGNATURE K. M. Robertson DATE 1/20/95

K. M. Robertson, P.E.
Planning and Design Department Head
Southern Division
Naval Facilities Engineering Command

# TABLE OF CONTENTS

# TABLE OF CONTENTS
(CONTINUED)

# SECTION 1

# INTRODUCTION

**1. PURPOSE:** The purpose of this publication, referred to as the "A/E Guide", is to inform Architect/Engineer (A/E) firms of the administrative and technical requirements for providing professional services to Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM). The A/E Guide is part of the A/E firm's contract. It is essential that the A/E Guide be thoroughly reviewed prior to submission of an A/E fee proposal and that it be referred to throughout the execution of the A/E contract. Special emphasis should be placed on Section 5 which discusses scope and cost limitations and Section 11 (eleven) which provides requirements for contract deliverables. Questions concerning the requirements of this publication should be addressed to the SOUTHNAVFACENGCOM Project Manager (PM).

**2. CONTRACT CLAUSES:** The A/E should review the standard "Architect-Engineer Contract Clauses". These clauses are incorporated, by reference, as part of the A/E firm's contract with SOUTHNAV-FACENGCOM. Upon request, the Contracting Officer will provide copies of the applicable A/E Contract Clauses.

## SECTION 2

# DESIGN PHILOSOPHY

**1. GENERAL:** Our design philosophy is one of responsive, responsible, and defensible design for Navy shore facilities with a commitment to design principles and practices which are requirements-based, logical, and conservative. Our designs must produce facilities that are straightforward and businesslike. They must respond to user needs, but reflect a responsible use of public funds. They must be defensible in terms of scope, cost, and appearance. Appropriate, defensible design is:

Well planned

Effective in function

Appropriate in form and appearance

Cost-effective

Constructable

Adaptable and durable over time in the operating environment giving proper weight to each of the above elements.

Monumental structures, stylistic applications of ornament, extreme configurations, excessive automation/mechanization; poor choices of utility, electrical or HVAC systems; and exotic landscaping or materials are inconsistent with our objective to create pleasant, efficient and cost effective facilities.

**2. IMPLEMENTATION:** Before beginning the design, the A/E should review current criteria, instructions and guide specifications provided by SOUTHNAVFACENGCOM, and make a thorough study of conditions at the site and the requirements of the project. If, after an analytical review, the A/E is of the opinion that a deviation from instructions, Navy criteria or building codes would be of benefit to the Government, the A/E shall bring the matter to the attention of the PM for a decision. SOUTHNAVFACENGCOM encourages the A/E to use ingenuity and professional expertise to develop the best possible design for all elements of the project within the constraints imposed. However, the use of untried concepts and materials for which no "track record" exists, is discouraged.

# SECTION 3

# DEFINITIONS AND ABBREVIATIONS

1. **ACTIVITY OR CLIENT ACTIVITY:** A military unit, organization, station, or installation, or a non-DOD agency performing a military function or mission.

2. **ARCHITECT/ENGINEER (A/E):** The professional design or technical consulting firm engaged for professional architectural and/or engineering services.

3. **BUDGET:** Generally, the budget figure is the estimated construction cost (ECC) plus contingency (5% of the ECC) plus Government supervision, inspection and overhead (SIOH-6% of the ECC plus contingency).

4. **CONSULTANT:** A sub-contractor (Engineer or Architect) with which the A/E sub-contracts to prepare part of the total design package, or anyone outside the A/E's organization who is retained by the A/E to assist in the performance of studies, investigations, surveys and other such services, including design.

5. **CONTRACTING OFFICER:** The Government official authorized to enter into and to modify contracts for the Government.

6. **CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE (COTR):** The representative of SOUTHNAVFACENGCOM, assigned by the Contracting Officer to serve as the focal point between all Government representatives and the A/E for the contract and all delivery orders/projects.

7. **DOD:** Department of Defense.

8. **ESTIMATED CONSTRUCTION COST (ECC):** The estimate of the cost amount that Contractors will bid for the construction of a project.

9. **INTERIOR DESIGN**

a. ***STRUCTURAL INTERIOR DESIGN (SID):*** The selection, design and color coordination of the interior finish elements of a building (floor, wall, ceiling finishes) and those items attached (bulletin boards, directories, marker boards, built-in furnishings, systems furniture and window blinds, etc.).

b. ***COMPREHENSIVE INTERIOR DESIGN (CID):*** The selection and design of the free standing movable furniture and furnishings to outfit a building.

10. **MCON:** Military Construction Navy. Major Navy construction projects specifically authorized by Congress.

11. **MILCON:** Military Construction. Major Navy, Air Force, and Army construction projects specifically authorized by Congress.

12. **MCNR**: Identifies those projects which are funded from Military Construction Navy Reserve appropriations.

13. **MCAF**: Identifies those projects which are funded from Military Construction Air Force appropriations.

14. **NONAPPROPRIATED FUNDS (NAF)**: NAF projects are those projects required to meet the morale, welfare and recreational program needs of the Navy, but are not funded through the MCON or O&MN programs.

15. **NAVAL FACILITIES ENGINEERING COMMAND (NAVFACENGCOM)**: The design and construction agency for the Department of the Navy, the Marine Corps and certain other Government agencies.

16. **OFFICER IN CHARGE OF CONSTRUCTION (OICC)**: In the administration of construction contracts, the Commanding Officer, Southern Division, Naval Facilities Engineering Command acts as the Officer in Charge of Construction.

17. **O&MN**: A short-name appropriation designation for projects funded from the Operations and Maintenance Navy appropriation.

18. **OPERATING AND MAINTENANCE SUPPORT INFORMATION (OMSI)**: Documentation and procedures necessary to promote and maximize the efficiency, economy, safety and effectiveness of the life cycle operation and maintenance of a facility.

19. **PROJECT ENGINEERING (PE) PHASE**: The preliminary design phase of a project that results in an approved schematic design. PE documentation is used as the basis of a request to Congress for authorization to construct a facility under the Military Construction Program.

20. **PROJECT MANAGER (PM)**: The PM may be the COTR or assigned by the COTR to serve on his/her behalf as the technical focal point for a particular delivery order/project. The PM shall be contacted directly for information and advice.

21. **PLANNING AND DESIGN MANAGER (PDM)**: The representative of SOUTHNAVFACENGCOM who coordinates with the Activity and the sponsor (usually a Command of the Navy Department), and who will provide liaison in matters pertaining to scope and funding of the project.

22. **PUBLIC WORKS OFFICER (PWO)**: The PWO is the design/engineering agent of the Activity. In many cases, the ROICC at a particular Activity has the additional responsibility as PWO for that Activity.

23. **RESIDENT OFFICER IN CHARGE OF CONSTRUCTION (ROICC) OR RESIDENT ENGINEER IN CHARGE OF CONSTRUCTION (REICC)**: The Commanding Officer SOUTHNAVFACENGCOM (OIC) usually delegates the field administration, surveillance/inspection of a construction contract to a Resident Officer in Charge of Construction or to a Resident Engineer in Charge of Construction. In this case, A/E correspondence during the construction phase of the work shall be directed to the ROICC or REICC, with copies to the

Commanding Officer, SOUTHNAVFACENGCOM, attention the appropriate PM.

24. **REVIEW CONFERENCE:** A meeting to resolve comments generated by a traditional or in-progress review or to conduct an on-board or over-the-shoulder review.

25. **REVIEW STRATEGY:** A plan for a project covering the number, type, and timing of all Government reviews of A/E prepared work, including related review conferences, summarized in the Schedule of the SOW, and including some combination of the following:

a. ***Traditional review*** - A/E submits design documents and stops work while the Government reviews.

b. ***In-progress review*** - Same as traditional review except the A/E continues design effort while the Government reviews.

c. ***On-board review*** - Government reviewers and the A/E visit the activity to review the design documents submitted by A/E; designated on board/in progress, or on board/traditional depending on whether or not the A/E continues or stops work while the Government reviews.

d. ***Over-the-shoulder review*** - Government reviewers visit the A/E's office to review the A/E's work in progress.

26. **SECNAV:** Secretary of the Navy.

27. **SOUTHERN DIVISION, NAVAL FACILITIES ENGINEERING COMMAND (SOUTHNAVFACENGCOM):** Represents the Naval Facilities Engineering Command in twenty-six states of the United States and certain areas outside the continental United States.

28. **STATEMENT OF WORK (SOW):** Indicates the work to be accomplished by the A/E and along with the A/E Guide and applicable technical guidance becomes part of the A/E contract.

29. **SUPERVISION, INSPECTION AND OVERHEAD (SIOH):** A fee charged against the project to cover the expenses of SOUTHNAVFACENGCOM during construction of the project.

30. **TECHNICAL GUIDANCE:** Discipline - specific guidance for AE firms providing services to SOUTHNAVFACENGCOM. Technical guidance is contained in separate documents for each of eight disciplines (civil, architecture, structural, mechanical, electrical, fire protection, cost, and specifications) designated as "SODIV-TG-100__". The technical guidance documents applicable to a specific project become part of the A/E contract for that project, along with the SOW and the A/E Guide.

## SECTION 4

# ADMINISTRATION OF A/E CONTRACT

**1. A/E SELECTION:** Complete information concerning SOUTHNAVFACENGCOM policies and procedures for consideration and selection is available from Code 0213, SOUTHNAVFACENGCOM, P.O. Box 190010, North Charleston, South Carolina 29419-9010; telephone number (803) 743-0748.

**2. STATEMENT OF WORK (SOW):** After the selection of an A/E, a copy of "The Statement of Work" will be forwarded to the A/E with a request for a fee proposal. The SOW, will indicate the extent of the work to be accomplished by the A/E and serves as the basis for the A/E's fee proposal and the Government's estimate of the A/E fee. The SOW is a part of the contract between the A/E and the Government, therefore, it is essential that the two parties agree that the work to be accomplished as described therein is accurate and complete. Changes to the SOW, when necessary, will be made by the Contracting Officer in writing in accordance with the contract clauses.

**3. PRE-NEGOTIATION CONFERENCE:** For certain projects, pre-negotiation visits to the Activity may be necessary for reviewing and clarifying the proposed items of A/E Services and to become more familiar with site conditions. The pre-negotiation conference will normally be attended by the PM and representatives of the Activity. A/E attendance is voluntary and the Government will not be responsible for A/E costs incurred by this visit.

**4. AWARD OF A/E CONTRACT:** Upon receipt of the A/E's fee proposal and subsequent agreement on a price, the Government will issue a contract, signed by the Contracting Officer. The A/E is authorized to begin work as of the contract date.

**5. PAYMENTS:** Shortly after award of the contract, a payment information package will be forwarded to the A/E by SOUTHNAVFACENGCOM. This package contains guidance and forms for preparing and submitting payments in accordance with the Contract Clause entitled "Payments Under Fixed-Price Architect-Engineer Contracts". Monthly payments may be made as the work progresses subject to submission by the A/E of estimates of the value of completed services and determination by the PM that the A/E's performance is satisfactory. The extent of supporting data required from the A/E will vary depending upon the amount of the invoice and past A/E performance.

**6. CORRESPONDENCE:** Correspondence with SOUTHNAVFACENGCOM shall be addressed to:

Commanding Officer
Attn: (Specific Person/Code)
SOUTHNAVFACENGCOM
PO Box 190010
North Charleston, SC 29419-9010

Overnight express mail shall be addressed to:

Commanding Officer
Attn: (Specific Person/Code/Phone)
SOUTHNAVFACENGCOM
2155 Eagle Drive
North Charleston, SC 29418

All correspondence relating to the A/E Contract shall reference the contract number. After award of a construction contract, all correspondence relating to the construction contract documents (drawings and specifications) shall reference the A/E Contract Number, the project title and location, and the construction contract number. When bulky submittal items are forwarded under separate cover, a copy of the forwarding letter and other related correspondence shall be included with the package forwarded under separate cover.

**7. CONSULTATION WITH THE CLIENT ACTIVITY:** The PM is the focal point between all Government representatives and the A/E regarding technical and performance issues. The A/E may be required to consult with the ROICC or Public Works Office in matters concerning local conditions or operational requirements. Technical and design considerations which conflict with the directions from the PM shall be brought to the PM's attention immediately.

## SECTION 5

# RESPONSIBILITIES OF THE A/E

**1. QUALITY OF WORK:** The work of the A/E will be reviewed by SOUTHNAVFACENGCOM to the extent necessary to assure compliance with life safety, public law, authorized scope limitations, customer requirements, and cost limitations. *SOUTHNAVFACENGCOM WILL NOT UNDERTAKE A DETAILED TECHNICAL REVIEW OF THE A/E'S WORK.* It will be the responsibility of the A/E, acting in a professional capacity, to ensure accuracy, completeness, and correctness of the design, cost estimate and all engineering concepts and details of the work, including the coordination of the various architectural, civil, structural, mechanical, electrical, and other subdivisions thereof with each other and with the specifications. *THE A/E ASSUMES FULL RESPONSIBILITY FOR THE TECHNICAL ACCURACY AND PROFESSIONAL ADEQUACY* of all work which he presents over his signature. *THE A/E SHALL ASSIGN COMPETENT ARCHITECTS AND ENGINEERS, EXPERIENCED IN THEIR RESPECTIVE DISCIPLINES, TO THE VARIOUS PARTS OF THE WORK TO INSURE ALL ELEMENTS ARE DESIGNED CORRECTLY AND IN ACCORDANCE WITH THE BEST ARCHITECTURAL AND ENGINEERING PRACTICES. ERRORS AND/OR DEFICIENCIES IN THE A/E'S WORK SHALL BE CORRECTED OR REVISED BY THE A/E AT NO ADDITIONAL FEE.* During the bidding and construction phases, The A/E shall prepare amendments to the construction documents and cost estimates as necessary to interpret and clarify the documents and to correct errors and omissions. The A/E shall prepare amendments in accordance with SOUTHNAVFACENGCOM Guide Specification 01007, entitled "CONTRACT AMENDMENTS-GUIDANCE AND PROCEDURES." These services will be provided by the A/E without additional compensation.

**2. SCOPE LIMITATIONS:** The A/E shall design the Project in accordance with the Scope Limitations and Project Description in the Statement of Work. The scope of any feature may not be exceeded without written approval of the PM. Minor deviations in the scope of supporting items may be made to suit field conditions.

**3. CHANGES IN SCOPE:** The A/E shall not deviate from the authorized Scope. *IN NO CASE SHALL CHANGES IN SCOPE BE MADE AT THE ACTIVITY LEVEL. THE A/E'S RESPONSIBILITY IS DIRECTLY TO THE CONTRACTING OFFICER AND ANY REQUESTED DEVIATION FROM THE SCOPE OR ELABORATIONS WITHIN THE SCOPE MUST BE BROUGHT TO THE ATTENTION OF THE CONTRACTING OFFICER FOR RESOLUTION.* During the progress of the work, the A/E may expect minor changes in criteria within the general scope of the project and should make necessary adjustments accordingly. Should *MAJOR* changes in the Scope be authorized, appropriate modification to the A/E contract will be negotiated in accordance with the

"Changes - Fixed Price" clause of the Contract Clauses.

**4. COST LIMITATIONS:** In accordance with the Contract Clause entitled "Design within Funding Limitations", the A/E is responsible for designing a Project so as to permit the award of a construction contract within the Total Construction Funds Available using customary NAVFACENG-COM contracting procedures. It is also the responsibility of the A/E to design the Project for the lowest life cycle cost, including construction cost and accumulated maintenance and operating costs. The A/E shall determine, at the earliest possible stage of design, that the cost of the Project will or will not exceed the funds stated in the Cost Limitations; if it will, the A/E shall promptly notify the PM in writing. The A/E shall structure the construction contract documents so as to have a base bid which maximize chances of awarding the construction contract within the funds available and includes all essential features necessary to satisfy the Project requirement and to provide a complete and usable facility. Additive bid items shall be included as appropriate to provide the complete scope of the Project. When bids or proposals for the construction contract are received that exceed the Total Construction Funds Available the A/E shall perform such redesign and other services as are necessary to permit contract award within the funding limitation.

**5. CONFORMANCE TO CRITERIA:** All work shall be in accordance with current NAVFACENGCOM and SOUTHNAVFAC-ENGCOM criteria, instructions, technical guides, and guide specifications. See Section 8 for information on criteria and obtaining criteria.

**6. A/E PROJECT MANAGER:** One individual of the A/E Firm shall be designated as Project Manager. The Project Manager shall be fully cognizant of the requirements of the A/E Contract, performance schedule and contents of this publication. The Project Manager will work directly with the assigned PM, who will furnish design guidance necessary for the successful execution of the work.

**7. POOR A/E PERFORMANCE (RE-SUBMITTAL POLICY):** If the PM determines that a design submittal is unacceptable, thus necessitating a resubmittal, the A/E may be required to send representatives to SOUTHNAVFACENG-COM at no additional cost to the Government to resolve the problems with the design.

**8. ERRORS AND NEGLIGENT PERFORMANCE (A/E LIABILITY):** Neither the Government's review, approval or acceptance of, nor payment for, the services required shall be construed to operate as a waiver of any rights under the design contract or any action arising out of the performance of the design contract, and the A/E shall be and remain liable to the Government for all damages caused by the A/E's negligent performance of any of the services furnished. Design errors or omissions which result in damages or extra cost to the Government will be evaluated for potential A/E financial liability. If the Government determines that the A/E is financially liable for a design deficiency, the A/E will be so advised by official correspondence. Reimbursement of costs incurred by the Government as a result of the A/E's errors and/or negligent performance will be actively pursued by SOUTHNAV-FACENGCOM. The preferred method of settlement of A/E financial liability is for the

A/E to accept responsibility and negotiate directly with the Contractor. Where the A/E cannot reach an agreement with the Contractor or if the A/E declines to negotiate or accept responsibility, SOUTHNAV-FACENGCOM will arrange settlement directly with the Contractor and will bill the A/E.

**9. DOCUMENT OWNERSHIP:** Under the clause "Drawings and Other Data to Become Property of Government" of the Contract Clauses, the ownership of all designs, drawings, specifications, notes, calculations, and other work is vested in the Government.

# SECTION 6

# EVALUATION OF A/E PERFORMANCE

1. PERFORMANCE EVALUATIONS: The Government will prepare A/E performance evaluations for all Design and Engineering Service Contracts. A/E performance will be rated as either excellent, above average, average, below average, or poor taking into consideration such things as technical quality, coordination of design documents, cost effectiveness, maintaining project schedules, cooperativeness, etc. Incomplete submissions, late submissions or resubmissions will have significant adverse impact on an A/E's performance evaluation.

2. DESIGN PHASE EVALUATION: Immediately upon completion of final design, or engineering services, the PM will evaluate the A/E performance on the services rendered. Standard Form 1421, "Performance Evaluation (Architect-Engineer)", is used for this purpose. A copy is maintained in the SOUTHDIV A/E Contract and Qualification Data File and the DOD central database in Portland, Oregon for a period of six years. The A/E will be notified in writing if a "Poor" rating is proposed, or if the A/E is not recommended for future contracts, and will be allowed an opportunity to meet with appropriate personnel at SOUTHNAVFACENGCOM to discuss the rating and possible corrective actions. The A/E's response will be taken into consideration when finalizing the evaluation. If the final evaluation is still "Poor", it will be attached to the finalized evaluation form. The A/E will also be notified in writing if an "Excellent" rating is earned.

3. INTERIM PERFORMANCE EVALUATIONS may be prepared and used to advise A/Es of their performance during the execution of a contract as considered appropriate by the Contracting Officer.

4. CONSTRUCTION PHASE EVALUATION: Within 90 days after beneficial occupancy of the facilities constructed, the ROICC will submit an evaluation of the performance of the A/E and effectiveness of the A/E prepared contract documents. This evaluation, also on Standard Form DD 1421, is maintained in the A/E Contract and Qualification Data File and DOD database.

5. AWARDS FOR EXCELLENT PERFORMANCE: A/E Firms that perform contract services in an excellent manner may be considered for special recognition. Certificates of Appreciation are given by the Commanding Officer, SOUTHNAVFACENGCOM and Certificates of Commendation are given by the Commander, NAVFACENGCOM for exemplary performance in one or more areas of contract services. In addition, Design Excellence Awards are given (after construction is underway) for exemplary performance in all areas of A/E services. Also, Awards for Specifications are made by NAVFACENGCOM to specifically recognize and reward achievement by A/Es in the preparation of construction specifications of superior quality. To be eligible for these awards, A/Es must first enter the annual Construction Specifications Institute (CSI)-administered Specifications Competition, an

on-going industry-wide program. Entry into the CSI program results in automatic entry into the NAVFACENGCOM specifications competition.

6. AFFECT ON FUTURE SELECTION: Performance evaluations are available to future slate and selection boards and will be considered when subsequent A/E selections are made. Furthermore, copies of evaluations are available for the use of other Federal Design and Construction Agencies in selecting A/Es for their design contracts.

# SECTION 7

# RELEASE OF INFORMATION

1. **CLEARANCE:** Before any information concerning a project under design or construction is released for publication or public speeches, the A/E shall contact the Public Affairs Office, (803) 743-0771, to obtain a clearance and release.

2. **INTERPRETATION OF DRAWINGS AND SPECIFICATIONS:** During the bidding period, all requests made to the A/E by prospective bidders for clarification or interpretation of drawings and specifications shall be referred to the Contract Department, SOUTHNAVFACENGCOM. A telephone number will be listed in the "Bidding" section of the specifications. If the inquiry cannot be satisfied by SOUTHNAVFACENGCOM, the matter will be referred to the A/E by the PM for clarification and preparation of an Amendment if necessary. Amendments shall be prepared in accordance with SOUTHNAVFACENGCOM 01007, Contract Amendments - Guidance and Procedure.

3. **MILITARY SECURITY REQUIREMENTS:** All classified projects are to be accomplished in accordance with appropriate clauses of the FAR, which will be added to the contract when applicable, and other supplemental security requirements as imposed by the OIC.

4. **PUBLIC INFORMATION ACT:** The Public Information Act, 5 USC 522, as amended, requires the release of records held by Government Agencies or Offices when requested by interested parties, unless such records are covered by one of the "exemptions" listed in the law. The FAR and SECNAV Instruction 5720.42 provide DOD and Navy policy and guidance on handling requests for records and exemptions under this Act. Of primary concern to SOUTHNAVFACENGCOM is the release of cost and pricing data which A/Es consider as privileged and essential to their competitive position in their respective economic sectors. The A/E is advised that the Public Information Act applies to the data provided during negotiations. Therefore, in the event an A/E wishes their cost and pricing data to be privileged and exempt from public release, SOUTHNAVFACENGCOM should be advised in writing and each page containing such data should be appropriately marked.

# SECTION 8

# CRITERIA

**1. DEPARTMENT OF DEFENSE CRITERIA:** Department of Defense MIL-HDBK-1190, "Facility Planning and Design Guide", contains the basic criteria applicable to all Military Construction. Appropriate NAVFAC instructions and publications have been developed to implement, clarify or supplement the data contained in the Guide.

**2. DESIGN CRITERIA:** A/E shall design the project in accordance with criteria listed in the current "SOUTHNAVFACENGCOM Index of Criteria" (Guide 00001), and with other criteria as may be provided by the PM. This "Index of Criteria" lists NAVFAC Guide Specifications, Design Manuals (DMs), Military Handbooks (MIL-HDBKs), and other types of criteria documents. The "Index of Criteria" can only be obtained from SOUTHNAVFACENGCOM. In the event information contained in a DM or MIL-HDBK conflicts with current SOUTHNAVFAC-ENGCOM criteria, the current criteria shall govern.

The Compact Disc-Read Only Memory (CD-ROM) system titled Construction Criteria Base (CCB), distributed by the National Institute of Building Sciences (NIBS), includes most of the criteria used for SOUTHNAVFACENGCOM projects. Other sources are the Defense Automated Printing Service (DAPS) Philadelphia for DOD standardization documents (such as military standards, military handbooks, etc.) and National Technical Information Service (NTIS) for non-standardization documents (such as design manuals, P-publications, etc.). Addresses for these organizations and document ordering information are provided in Paragraph 9.

**3. OBTAINING DESIGN CRITERIA:** Most of the documents listed in the "Index of Criteria" are available from the sources noted in the previous paragraph. However, upon request, SOUTHNAVFACENGCOM will provide at no cost to the A/E paper copies of NAVFAC criteria listed in the "Index of Criteria" which are needed to perform the contracted design, except for NAVFAC Guide Specifications (NFGSs). Regarding NFGSs, the A/E is responsible for obtaining all necessary NFGSs listed in the " Index of Criteria" at his expense through the CCB from NIBS; SOUTHNAVFACENGCOM will provide only the interim Regional Revisions to these guides (i.e., "pink sheets").

**4. SUPPLEMENTAL DESIGN CRITERIA:** When necessary for projects, the following will be provided by SOUTHNAVFACENGCOM:

**a.** When available, pertinent information relative to the project which has been developed and would be beneficial to the A/E in preparation of drawings and specifications (e.g., studies, previously prepared drawings, topographical maps, soils and other data relative to site conditions, existing structures and utilities).

**b.** Standard Designs (SDs), when applicable: Standard structures (mandatory

and nonmandatory) are those for which construction drawings and specifications (referred to as standard drawings and standard specifications) are available. Mandatory standards are developed for certain specialized structures to insure uniform construction which will meet the rigid operational requirements established by using Commands and their use is mandatory without deviation. Nonmandatory standards are furnished as recommended guides and present complete construction information. Modifications may be made in the manner delineated by MIL-HDBK-1006/1, "Policy and Procedures for Project Drawing and Specification Preparation".

c. Definitive Designs (DDs), when applicable: Definitive Designs are drawings issued by NAVFAC for buildings and structures for which there will be a repetitive need in future Military Construction Programs. These designs set forth the best combination of functional requirements and engineering judgment as determined from the experience of NAVFAC and the cognizant using Commands, and the drawings provide floor plan arrangements, equipment layouts, building elevations, utility requirements, etc., for guidance in preparing designs. Use of DDs is required when available. While minor modifications may be necessary to meet specific site requirements or local conditions, major modifications must be fully supported and cleared through SOUTHNAVFACENGCOM.

d. Air Force Manuals, Regulations, Instructions, Handbooks, Pamphlets, Engineering Technical Letters (ETLs), and Construction Technical Letters (CTLs) when applicable.

**5. GOVERNMENT SPECIFICATIONS AND STANDARDS:** Federal and Military Specifications, Federal and Military Standards, Qualified Products Lists, Military Bulletins, and similar documents are available from DAPS Philadelphia. See Paragraph 9 for ordering information. Many of these documents are also available on the CCB.

**6. NON-GOVERNMENT CRITERIA:** It is the policy of the Government to use non-Government or industry criteria and standards as much as possible, where it does not conflict with the requirements or interests of the Government or result in restrictive bidding and competition. The American Society for Testing and Materials (ASTM), American National Standards Institute (ANSI), and others are used extensively in SOUTHNAVFACENGCOM contracts. If required, these documents must be obtained directly by the A/E (i.e., from the CCB, from appropriate industry association or technical societies, or from other sources).

**7. DESIGN KIT:** The A/E will be provided a "DESIGN KIT" which will include the following regional information (which is not available from the CCB): the current "SOUTHNAVFACENGCOM Index of Criteria", a set of the current SOUTHNAVFACENGCOM interim Regional Revisions to the NFGSs, and other applicable regional guidance. ***This regional information, as well as other criteria-related information, is also available for browsing or downloading on the Planning and Design Criteria webpage, accessible from the SOUTHDIV website on the Internet (www.navy.mil/homepages/navfac_southdiv).*** Paper copies of guide specifications included on the CCB will NOT

be provided. The PM may include some of the pertinent Design Manuals, Military Handbooks, and other design criteria at this time. Ensure that current information is on hand before starting each project; if not, request from the PM or obtain from the SOUTHDIV Internet homepage.

**8. OSHA:** NAVFACENGCOM has a continuing program to bring criteria in line with OSHA requirements; however, there may be conflicts with both DOD and NAVFAC criteria. OSHA regulations are continually being updated and supplemented so that new conflicts may be generated before resolutions can be achieved. OSHA does not apply where other Federal Agencies exercise statutory authority to prescribe or enforce standards or regulations affecting occupational safety or health. Special OSHA requirements do not apply to conditions covered under:

a. State nuclear safety or health standards or regulations implementing 42 USC Section 2021; 2021 et seq;

b. Explosives safety or health standards or regulations implementing 10 USC Section 172;

c. Nuclear safety or health standards or regulations implementing 42 USC Sections 2012 and 2121(b) or 2201(b) such as standards and regulations imposed by the Navy on facilities used in support of the Navy Nuclear Propulsion Program.

The A/E shall assure that facilities being designed as places of employment are designed in compliance with the Occupational Safety and Health Act, PL 91-596, except as outlined above and when conflicting with NAVFAC criteria. Cases of conflict shall be referred to the PM for resolution. Particular attention should be given to 29CFR1910 subparts D "Walking-Working Surfaces", E "Means of Egress", G "Occupational Health and Environmental Control", J "General Environmental Control", L "Fire Protection" and S "Electrical Code". When designing facilities for the handling of hazardous materials or substances, allowable concentrations of such materials may dictate the design of air conditioning or ventilation equipment. Therefore, all persons involved in design of places of employment should become thoroughly familiar with the OSHA standards and apply these standards wherever applicable in the design of DOD facilities.

## 9. CRITERIA DOCUMENT ORDERING INFORMATION

**9.1 CONSTRUCTION CRITERIA BASE (CCB):** CCB is an electronic database which includes military and other federal agencies' guide specifications, design and technical manuals, standards, cost estimating systems, and other information. Developed by NIBS in cooperation with DOD, the CCB utilizes CD-ROM technology and is available from NIBS on an annual subscription basis, with a fully updated disc provided each calendar quarter (including software and software updates). Subscribers can also browse or download CCB documents directly from the CCB website on the Internet. Subscriptions can be ordered from the following address:

National Institute of Building Sciences
ATTN: CCB
1201 L Street, NW, Suite 400
Washington, DC 20005

Telephone: (202) 289-7800
FAX: (202) 289-1092
E-mail: ccb@nibs.org
Website: www.ccb.org

Contact NIBS for current subscription cost and delivery information and for user PC hardware and software required to run the CCB.

**9.2 STANDARDIZATION DOCUMENTS:** DOD specifications and standards of the types listed below (called "standardization documents") are available from the Department of Defense Single Stock Point (DODSSP) at DAPS Philadelphia:

Military Handbooks
Military/Federal Specifications
Military/Federal Standards
Qualified Products Lists
Commercial Item Descriptions

Call the DODSSP Special Assistance Desk at (215) 697-2667/2719 to determine cost per document page, page counts for the documents you want, and information regarding requests for multiple copies of documents.

Order documents by mail or by fax using either a letter request or the order form available from the DODSSP website (www.dodssp.daps.mil). Mailed requests must include check or credit card number and should be sent to the following address:

DODSSP
Building 4/Section D
700 Robbins Avenue
Philadelphia, PA 19111-5098

Faxed requests must include credit card number and should be sent to the following number:

FAX: (215) 697-2978

For inquiries or questions related to ordering standardization documents, call the DODSSP Special Assistance Desk at one of the numbers previously listed.

**9.3 NON-STANDARDIZATION DOCUMENTS:** Design Manuals, P-Publications, and other non-standardized documents may be purchased by check/money order/credit card ***or*** by deposit account from:

National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
ATTN: Defense Publications

Phone: (703) 487-4684
Toll Free: 1 (800) 553-6847
FAX: (703) 321-8547
E-mail: orders@NTIS.fedworld.gov
Website: www.ntis.gov

Cost varies with document size, and response time is advertised nominally as 3-5 days if the document is "on-hand" at NTIS or 4-6 weeks if the document has to be ordered. This information can be determined for a specific document by calling one of the telephone numbers previously given.

# SECTION 9

# DESIGN CONSIDERATIONS

1. PRIVATE VS GOVERNMENT DESIGN: There are certain basic differences between private and Government design, which should be thoroughly understood by the A/E. Failure to grasp these basic differences in rules and policies has been the source of many costly disputes. These are:

a. The Government cannot limit bidding to a selected list of Contractors known to do good work. Any Contractor may bid. Therefore, drawings and specification requirements must leave little to the imagination. They must be clear, concise, detailed, and thoroughly coordinated.

b. Specifications shall be "nonproprietary" and allow full and open competition in the expenditure of public funds.

c. Many Navy structures involve complex electronic, technical, or weapons systems that require a higher order of reliability than private industry structures.

d. The BUY AMERICAN ACT requires that only domestic construction materials and equipment will be specified and used in Government Contracts. However, this Act has recently been modified to allow the use of products from Canada, Mexico, and the European Community on projects with an estimated acquisition value of $6.5 million or more.

2. CONTRACTOR OPTIONS: Drawings and specifications may be prepared to give the contractor a choice of materials or methods when optional materials or methods would be equally satisfactory for the purpose and are comparable in cost. Optional designs are permitted, such as hemispherical bottom or semi-ellipsoidal bottom for an elevated steel water tank, however, the right to select an option rests with the Contractor.

3. A/E VERIFICATION OF EXISTING FEATURES: The Government does not require bidders to visit the projectsite prior to submitting a bid. Therefore, to avoid claims and extra costs, it is important that existing features are adequately shown on the drawings and described in the specifications in sufficient detail to allow the contractor to bid the work without visiting the site. This is especially important for demolition and alteration work and will require adequate site investigation and verification of as-built drawings. Where existing conditions cannot be readily determined, such as the thickness of pavement or existence of hidden items, quantities shall be estimated to establish a basis for bidding. If the cost to demolish or alter hidden features is significant, the A/E shall request the OIC to authorize additional investigation or testing to quantify these costs.

4. CONTACTS WITH UTILITY COMPANIES: The A/E shall contact appropriate utility company representatives as necessary to determine the nearest location and characteristics of service facilities capable of

supplying requirements. Such contacts should be made on an information basis only. Caution should be exercised to avoid any implied commitment on the part of the Navy for any planned requirements. Also, feasibility studies conducted should be based on cost-of-service information provided by the Government in lieu of the published or quoted rates of the supplier. The cost of utility service for use in feasibility studies and information concerning selection of fuel will be furnished by the PM upon request.

## 5. ENVIRONMENTAL PROTECTION:

**5.1 Pollution Control:** All applicable pollution control standards promulgated by Federal, State and local agencies in implementing environmental legislation; Clean Water Act; Resource Conservation Recovery Act; Safe Drinking Water Act; Noise Control Act; Toxic Substances Control Act; Marine Protection and Sanctuaries Act; Federal Insecticide, Fungicide and Rodenticide Act; are applicable. "Applicable pollution control standards" are the same substantive, procedural, and other requirements that would apply to the private and industrial sectors. Facilities shall be designed to comply with the most stringent Federal, State or local standards.

**5.2 Stormwater Management:** Stormwater management shall be incorporated into all applicable designs so as to eliminate or reduce the discharge of pollutants from impervious surfaces, i.e. rooftops, and parking areas. Applicable state stormwater management guidelines shall be followed.

## 6. PHYSICAL SECURITY FEATURES:

Physical Security includes both active and passive measures to safeguard personnel, protect property and assets, and prevent losses. Depending upon the type of facility involved, there are a number of documents and instructions controlling Physical Security. Guidance sources include Military Handbook 1013/1, "Design Guidelines for Physical Security of Fixed Land-Based Facilities" and portions of other Design Manuals and Military Handbooks. Appropriate consideration should be given to Physical Security in preparing the drawings and specifications. Required and/or desirable Physical Security features should be incorporated initially to eliminate costly additions later. Specialists in various aspects of Physical Security are available at most activities and at SOUTHNAVFACENGCOM and should be consulted during early stages of design development to ensure that required Physical Security standards and features are considered and incorporated. The PM will arrange consultation with the Design Division Physical Security specialist at SOUTHNAVFACENGCOM upon request of the A/E.

## 7. SUBMISSION OF DESIGN DOCUMENTS:

**7.1. Protection Of Computer Systems:** Electronic data provided by A/Es to SOUTHNAVFACENGCOM must be virus free. All computer diskettes, magnetic tapes, and modem transmissions of data must be scanned with computer virus detection software prior to being forwarded. The diskette, magnetic tape, or modem transmission shall be accompanied by a certification of the anti-virus software used and a statement that it is free of detectable viruses.

**7.2. Schedule For Submittals:** The schedule for design submissions is established in the SOW. ***MEETING ESTABLISHED SUBMITTAL SCHEDULES IS ESSENTIAL.*** Late submissions may jeopardize project funding, construction contract award or user need dates

and will have an adverse impact on the A/E's performance evaluation.

**7.3. Distribution Of Submittals:** The SOW indicates which review agencies are to receive copies of each submittal. The A/E shall submit the required number of copies directly to each agency and provide a copy of all forwarding letters to the PM. The forwarding letter shall request that comments be forwarded to SOUTHNAVFACENGCOM within ten working days after receipt.

# SECTION 10

# REQUIREMENTS AND OPTIONS

## A. MINUTES/TRANSCRIPTS OF MEETINGS

The A/E shall prepare minutes of all conferences, meetings and telephone conversations in connections with this project and distribute copies to all parties. The PM shall be provided copies of all minutes and transcripts regardless of attendance/ participation.

## B. HANDICAP ACCESS

UNIFORM FEDERAL ACCESSIBILITY STANDARDS (UFAS) were most recently publicized as Federal Register/Vol.56 No.144/Friday, July 26, 1991/Rules and Regulations, due to new requirements of ADA. UFAS guidance for handicap accessibility shall be followed in the design of new facilities and alteration of existing facilities where civilian employees or the public will visit or work. The design will be reviewed and approved by the SOUTHDIV Handicapped-Access Design (HCD) reviewer. The A/E shall complete the Handicapped Checklist provided by HCD reviewer.

## C. SEISMIC DESIGN

Project design for seismic requirements shall be in accordance with NAVFAC P-355, "Seismic Design for Buildings".

## D. BID ITEM POLICY

NAVFACENGCOM has established as a basic policy that only ***ADDITIVE*** bid items may be used in projects; deductive bid items shall not be used. All elements of each additive bid item shall be readily identifiable on the drawings. If it is necessary to clarify additives on the drawings, they shall be designated as "Additive Bid Item"; do ***NOT*** designate bid item ***NUMBERS*** on drawings (this will avoid coordination problems should the bid items be rearranged later). See Section 5 of the A/E Guide, SODIV-TG-1006, and SODIV COST ESTIMATE INSTRUCTION 01190 for additional information on bid items.

## E. BASE EXTERIOR ARCHITECTURAL PLAN (BEAP)

The design guidance, which can be obtained from the PM, is to be followed for Navy installations / bases. Refer to BEAP chapter entitled "Base Design Guides" which covers requirements for architectural style and elements, roads/parking/walkways, landscaping, signage, utilities, and site furnishings. The design will be reviewed by the Architectural Review Board (ARB) for architectural compatibility.

## F. PRESERVATION OF HISTORICAL STRUCTURES

The National Historic Preservation Act (NHPA) Section 106 requires that this project go through the Section 106 review process. The A/E will contact the relevant State Historic Preservation Office when SOUTHNAVFACENGCOM authorizes such contact, coordinate the review process, and integrate applicable requirements in the design of the project.

## G. SITE ADAPTATION

1. For certain repetitive type structures and specialized structures, NAVFAC Standard Drawings or construction drawings of previously designed structures may be furnished to the A/E for site adaptation and will be listed in the SOW. A complete new design for all features outside the building five-foot line and any revisions within the five-foot line necessary to suit the new site are required.

2. Site adaptation, in general, consists of designing all exterior features (paving, drainage, utilities, etc.); modifying the foundation structure to suit the site; incorporating seismic and wind considerations; compliance with the base architectural plan; incorporating necessary HVAC considerations (heating, evaporative cooling or air conditioning) to suit the climatic conditions existing at the site; and bringing the design into compliance with building code, life safety code, or Navy criteria revisions. The A/E shall review the original design and prepare a report which identifies any changes needed to comply with building code, life safety code, or Navy criteria revisions that may have occurred since the original design

3. If necessary mechanical or electrical equipment cannot fit into the spaces provided in the Standard Drawings or construction drawings, then such spaces shall be adjusted or increased as necessary to accommodate the equipment.

4. The original design specifications and cost estimate are provided for information only. The A/E shall prepare specifications for the site adapt project using the latest NAVFAC guide specifications as listed in the SOUTHNAVFACENGCOM Index of Criteria. The A/E shall prepare a new cost estimate and shall not rely on quantities or unit costs given in the estimate for the original design.

5. It is not the responsibility of the A/E to certify the design of the Standard Drawings or construction drawings furnished for technical accuracy. However, if errors in the drawings are discovered or if the design or functional layout appears unworkable for the site adaptation, the matter shall be brought immediately to the attention of the PM in writing.

## H. METRIC DESIGN

1. All drawings, specifications, cost estimates, and calculations shall be done in units of the International System of Measurement (SI).

a) Measurements and units of any type on all required submissions shall be shown in SI metric units exclusively.

b) English system measurements SHALL NOT appear in reports,

drawings, specifications, cost estimates, or any other submission.

c) All correspondence shall be written using SI metric units exclusively

d) Discussion of measurements or units in meetings and presentations should be conducted in metric units.

2. The document "NAVFAC Metrication Conversion Policy for Design, Planning and Design Criteria, and NAVFAC Guide Specifications" provides guidance on drawings, specifications, and other elements of metric design implementation. This NAVFAC policy document shall be used in the design of this project and will be provided as part of the Design Kit. Two other documents referenced in the NAVFAC document, the American Institute of Architects (AIA) "Weights and Measures Style Guide for MasterSpec" (currently entitled "MASTERMETRIC") and the General Services Administration (GSA) M2 publication "Metric Design Guide", also provide excellent guidance and shall be used in conjunction with the NAVFAC document. The AIA document can be ordered directly from AIA by calling Mary Pflug at (202) 626-7352 or Mike King at (202) 626-7387. The GSA M2 publication is available from the GSA Regional Metric Coordinator by calling (215) 656-5822. The metric cost estimates shall be developed using the Work Breakdown Structure (WBS) and a microcomputer cost estimating program approved by SOUTHNAVFACENGCOM.

## I. VALUE ENGINEERING (VE) STUDY

All projects having an estimated construction cost greater than one million dollars will be considered for a value engineering (VE) team study, which will normally be performed after the schematic design submittal. The VE study will be accomplished by an independent VE Consulting Firm under contract to SOUTHNAVFACENGCOM, however, the A/E will be required to submit copies of the schematic submittal to the VE Team and to brief the VE Team on the design concept, review the VE proposals, provide a written response to the VE proposals, and participate in the decision to approve or disapprove the VE proposals. The A/E Project Manager shall attend the first two days of the VE study to brief the VE Team and to participate in brainstorming of VE ideas. The requirement for a VE study will be identified in the Statement of Work along with the location of the VE study. A more detailed description of the scope of a VE study is contained in SOUTHNAVFACENGCOM 01192, "Guide for Value Engineering Services".

## J. INTRUSION DETECTION SYSTEMS (IDS)

The A/E's responsibility for IDS varies from design of only facility support items to complete system design depending on project type as follows:

1) **Navy MCON Projects:** IDS design, including equipment/device requirements and locations, will be provided to the A/E. The A/E shall be responsible for providing related facility support items such as power wiring, junction boxes, conduit systems, built-in cabinetry, a riser diagram, and typical junction box installation details as an integral component of the overall project design. The A/E shall provide required

coordination with the Naval Criminal Investigative Service (NCIS) and NISE East via submittals at the Schematic, 35%, and 100% Submittal stages.

2) **Navy Non-MCON Projects:** The A/E shall be responsible for all aspects of the IDS design, including equipment/device requirements and locations as well as related facility support items, as an integral part of the overall project design.

3) **Marine Corps Projects:** The A/E shall be responsible for all aspects of the IDS design. The A/E shall provide required coordination with NISE East via submittals at the Schematic, 35%, and 100% Submittal stages.

4) **Air Force Projects:** IDS design, including equipment/device requirements and locations, will be provided to the A/E. The A/E shall be responsible for providing related facility support items such as power wiring, junction boxes, conduit systems, built-in cabinetry, a riser diagram, and typical junction box installation details as an integral component of the overall project design.

## K. STRUCTURAL INTERIOR DESIGN (SID)

1. Structural Interior Design (SID) consists of the design, selection, and color coordination of any element which is integral to or attached to the physical structure. SID deliverables include all necessary drawings (including a Finish/Color Schedule), specifications, basis of design information, and color boards. SID elements include, but are not limited to, all building surfaces (carpet, ceramic tile, vinyl composition tile, paint, wallcovering, plastic laminate, solid surfacing, etc.), built-in furnishings (cabinets, toilet partitions, projection screens, bulletin boards, marker boards, etc.), window treatments (venetian blinds, shutters, etc.), interior graphics/signs, and any and all other similar items. Any element eventually requiring color selection shall be included.

2. Systems furniture, when included, shall be treated as any other built-in element of the facility and shall be included in the plans and specifications. Systems furniture includes all panels (both powered and non-powered) with all hang-on components and associated task seating. Companion freestanding modular furniture required to complete associated functional work spaces and private offices shall be included. Each submittal shall demonstrate complete coordination with the facility design.

3. A *generic* Furniture Footprint of both SID and CID furniture shall be developed, showing adequate wall space, circulation area, coordination with built-in elements and related considerations. The purpose of this drawing is to indicate, from information provided by the activity customer, that appropriate spatial allowances have been made in the facility design. This Furniture Footprint is separate and apart from any further SID or any CID effort (CID Paragraph L).

## L. COMPREHENSIVE INTERIOR DESIGN (CID)

1. CID, when included in the SOW, can be accomplished either concurrently with the facility design or following the facility design.

2. CID services involve the development of a functional interior design which is based on the customer's requirements for the initial outfitting of the facility. This effort is accomplished by an interior designer through in-depth discussions with the customer using an exchange of information and the introduction of aesthetically appropriate interior design solutions which are fully integrated with the facility design. Plans and specifications of the final approved solution shall ultimately be developed. The following series of events and submittals, as scheduled in the SOW, are directed by the Southern Division project interior designer:

a) CID customer interviews are conducted by the A/E Interior Designer at the activity with the end user representatives.

b) The Concept Submittal is based on the A/E Interior Designer's solutions to the information gathered and requirements identified at the interviews. The design is developed in accordance with military procurement regulations.

c) The Concept Presentation is conducted by the A/E Interior Designer at the activity to the end user representatives. Along with the CID Concept Brochure, the presentation shall include an overall presentation of large scale boards of furniture illustrations, furnishings finishes and fabrics, formatted to communicate the design to the customer in a clear and aesthetically pleasing way. Review of the visuals by the Project Interior Designer before the presentation may be required.

d) The Pre-Final Submittal consists of the concept brochure with any revisions resulting from the concept presentation along with the addition of purchasing information.

e) The Final Submittal consists of all elements of the Pre-final Submittal along with the addition of the Design and Outfitting Cost Data Report consisting of CID service costs per square meter and furniture and furnishings costs per square meter or per room.

3. Optional CID services that may be required are:

a) Review of CID vendor/contractor submittals
b) Post occupancy evaluation
c) Furniture and furnishings installation inspection
d) Interior photography of installation
e) Post award furniture and furnishings purchasing documents up-date
f) Field Consultation

## M. REVIEW OF CONTRACT SUBMITTALS

1. A fee for review of construction contract submittals shall be negotiated for possible future award by the Contracting Officer. When authorized by the Contracting Officer, the A/E shall review all shop drawings, manufacturer's catalog data and other construction contract submittals, except those reserved for approval by the ROICC, SOUTHNAVFACENGCOM, or the contractor's quality control staff. All submittals shall be forwarded by the ROICC or contractor to the A/E for review. The A/E is cautioned that submittals cannot be expected in a single complete package. Submittals can be expected at various times and for various items throughout the construction phase of the project, except that certain construction contracts may require the contractor to submit all interior finish materials and colors at one time. The A/E shall review these submittals for compliance with the construction contract documents and provide a written recommendation for approval, disapproval or resubmittal within 10 working days after receipt.

2. Submittals for any equipment (including systems furniture) requiring utility connections shall be specifically reviewed for proper interface with the utility. Review should identify any deviations and state what modifications are necessary to install the equipment in accordance with the supplied data. A specific check shall also be made to determine that equipment which is to be installed in hazardous locations is approved for use in the particular Class, Division, and Group of the hazardous location.

3. If the contractor requests approval for material or equipment which is non-conforming to the contract requirements, but which the A/E considers to be satisfactory, the A/E shall furnish the answers to the following questions:

a) Is the substitution of equal, greater, or less quality than the design requirements?

b) If of less quality, what is the difference in value?

c) If of equal or better quality, what are the advantages to the Government in accepting the substitution at no change in contract price?

4. Each copy of the submittals shall be stamped and provided with the following information:

Contract Title/Location:
Construction Contract No.:
Specification Number:
Date/Time Received:
A/E Firm Name:
Checked by (signature):
Date:

5. The A/E shall endorse the submittals as being in compliance, or not in compliance by means of a notation on the face of the submission. The A/E's signature should be that of a registered architect or engineer as appropriate for the item being reviewed. No particular format is prescribed, but one of

the following A/E recommendations must be noted on each copy:

NO EXCEPTIONS TAKEN - RECOMMEND ACCEPTANCE.

RECOMMEND ACCEPTANCE WITH CORRECTIONS NOTED.

RESUBMITTAL REQUIRED - RETURNED FOR CORRECTIONS NOTED.

REJECTED - SEE REMARKS.

6. A minimum of four copies of each submittal shall be returned to the ROICC and copies shall be annotated by the A/E with any comments, deficient items or changes. In cases of recommended resubmittal or rejection, notes of sufficient detail for the contractor to correct the submittal shall be clearly marked on all copies of the submittal, and the A/E shall keep one file copy. The contractor will then resubmit and the A/E must repeat the review cycle until the submittals are in compliance with the contract documents and all approved deviations are clearly marked. If, after a resubmittal has been reviewed, the A/E determines that the contractor is not progressing satisfactorily toward submittal completion, he shall inform the ROICC.

## N. UNPLANNED CONSULTATION

1. The Contracting Officer will issue a contract modification for any unplanned field and/or office consultation/support during design and construction. The fee will be based on the manday rate for the required discipline, including overhead and profit, plus travel and per diem. The manday rate will be calculated using the manhour rate for the discipline times eight hours.

2. Upon authorization by the Contracting Officer, the A/E shall schedule and coordinate the site visit with the ROICC and/or PM. Should the A/E visit the site on his own volition or perform any service outside the services contracted for, reimbursement will not be made.

3. Unplanned consultative services may include, but may not be limited to, the following:

1) Design services
2) Site investigation
3) Consultation to the PM or ROICC
4) Attendance at the Pre-Construction Conference
5) Review of variances during construction

## O. AS-BUILT DRAWINGS

As-built (record) drawings will be prepared in accordance with the requirements of Section 11, Part H: Drawings.

## P. CONSTRUCTION SITE VISITS

1. A fee for construction site visits shall be negotiated by the Contracting Officer for award after completion of the project design as an option to the A/E contract. Authorization for these visits shall commence upon notification of the A/E by the Contracting Officer that a

contract modification has been issued and shall end after completion of the pre-final inspection. The purpose of the visits is to confirm by observation that the construction is being executed in compliance with the contract drawings and specifications.

2. Accordingly, at designated stages of construction, the ROICC shall request site visits by the A/E, who shall send appropriate discipline expertise for on-site review of the construction work. The A/E shall review construction status with the ROICC at the conclusion of each visit and prior to departure. The A/E shall document the construction features reviewed during each site visit and the compliance or lack of compliance of each feature with the contract requirements. Also, camera-dated photographs shall be taken during each site visit to document construction progress. Within 10 days of the completion of each visit, the A/E shall submit this documentation (include original photographs - photocopies not acceptable) in the form of a written report to the ROICC, the CAM, the PM, and the Claimant/User.

3. If "Quarterly Site Visits" are required by the SOW, the A/E shall conduct a visit each quarter, after the commencement of construction, for an overall assessment of construction progress and status. Within 10 days of completion of each visit, the A/E shall provide a written quarterly report to the ROICC, the CAM, the PM, and the Claimant/User which documents the status of construction (including photographs), the status of submittal reviews by the A/E, and unresolved design and construction issues, including RFIs.

4. If "Partnering Sessions" are required by the SOW, the A/E shall participate in such Sessions when requested by the ROICC. An initial session shall be conducted, with follow-up sessions during the project life as required.

# SECTION 11

# DELIVERABLES

## PART A: ASBESTOS SURVEY AND ABATEMENT

The A/E shall perform an asbestos survey of all areas of the project to be demolished, renovated or disturbed in accordance with the requirements of 40 CFR 763 "Asbestos Hazard Emergency Response Act" (AHERA). An EPA certified asbestos inspector, meeting the accreditation requirements of 40 CFR 763 Subpart E (AHERA) and licensed by the State, shall conduct the survey and validate prior surveys. The results of the survey will be used for construction permitting and will be subject to inspection by federal, state and local agencies. Survey and abatement work shall be conducted under a safety and health plan and in full compliance with all applicable safety, health and worker protection regulations.

The survey will incorporate prior survey information and supplemental testing as necessary and consist of the following five steps:

**Step 1)** Review existing building records and drawings for references to ACM used in construction, renovation, or repairs. Obtain prior Asbestos Surveys from the activity Asbestos Program Manager or facility manager.

**Step 2)** Validate prior surveys for the areas to be disturbed and incorporate into the new survey. The inspector shall verify that all suspected Asbestos Containing Material (ACM) has been identified, that site conditions have not changed, and that an adequate number of samples were collected and analyzed to meet 40 CFR 763.86 (AHERA Sampling) requirements. Prior positive results shall be accepted and no further testing is required. If prior results are negative for asbestos, but the number of samples for each suspect homogeneous area do not meet the AHERA sampling requirements, supplemental sampling shall be accomplished. Also ensure that all areas to be affected by the renovation or construction were inspected. "Affected areas" are those internal and external building areas in which renovation or construction activities will likely take place, including lay down areas, and areas in which utilities will be routed (ie; attics, crawl spaces, and above ceilings).

**Step 3)** Inspect the affected areas in the building(s) to identify those materials that may contain asbestos. Sufficient homogenous areas will be identified to assure that all ACM is identified and documented. Suspect materials shall be tested to the greatest extent possible; however, when determined not practical to sample the material it shall be Presumed Asbestos Containing Material (PACM). The inspector shall document in writing any denial of a request to perform destructive tests. Include in the documentation the reason(s) for not testing and who denied the request. The inspector

should seek permission to perform destructive testing from the highest authority available. The survey will include the identification of friable and non-friable ACM and PACM. The locations of all ACM will be determined, reported, and photographed. All floor tile, mastic, transite board, thermal insulation, roof flashing, and felts should be considered as PACM, unless testing proves otherwise.

**Step 4)** Sample and test the suspected materials identified in Step 2 and 3 in accordance with AHERA Sampling requirements, except that at least three samples of each suspect material shall be taken. Samples will be taken of the various troweled or sprayed on surfaces, pipes, and boiler insulation, tile, siding, shingles, and other suspect materials. A lab certified by the National Voluntary Laboratory Accreditation Program (NVLAP) using polarized light microscopy (PLM) will analyze samples in accordance with 40 CFR 763.87 (AHERA Analysis). Lab personnel performing sample analysis shall be EPA certified to perform asbestos analysis. When PLM analysis of a sample indicates asbestos content between 1 and 2 percent, the sample shall be point counted. The lab performing the analysis will document the results of each sample analysis.

**Step 5)** Prepare a report of the survey in accordance with 40 CFR 763.88 (AHERA Assessment) including paragraph (c) and containing the following items:

a) Identification of prior asbestos surveys available for review by the contractor. Include a brief description of areas surveyed, the date of the survey, and the location where the survey is retained.
b) A plan showing all homogenous locations of ACM and PACM, the estimated quantity, and sample points. Also note locations where removal of ACM will require temporary relocation of other systems, such as HVAC ducts and piping.
c) The test results.
d) Photographs as appropriate.
e) Any other information, field notes, or forms which provide pertinent data.

The A/E shall prepare comprehensive design drawings and specifications as necessary for abatement of the ACM and PACM. The person preparing the asbestos plans and specifications shall meet EPA accreditation requirements of 40 CFR 763 Subpart E and licensed by the State in which the work is conducted. The design shall show the location(s) of all ACM and PACM and indicate the type and concentration of asbestos in each material. Prepare contract document 00300, Information Available to Bidders, and include the complete survey report as an attachment to this section. Provide an electronic copy of 00300 and the complete report on 3-½ inch disk with the final design submittal.

If no asbestos is found in the building, a finding of no asbestos must be included in the contract document 00300, with the complete survey report.

**THIS PAGE INTENTIONALLY LEFT BLANK.**

## PART B: BASIS OF DESIGN

The Basis of Design is a narrative presentation of facts sufficiently complete to demonstrate that the concept of the project is fully understood and that subsequent design details and their ultimate presentation in the final drawings and specifications will be based on sound engineering. A discussion and description of the design in each of the disciplines appropriate to the project shall be provided. The submission is to be substantiated by brief statements regarding the rationale for the various selections. Unique design features or considerations required for the project that will significantly influence project cost or construction schedule shall be described and supporting rationale provided. For additional information and specific requirements by discipline, see Sections 12-17 of this Guide. The narrative shall be submitted at the design stages indicated in the SOW. The submittal shall be organized by discipline in the same sequence as Sections 12-17 and shall be bound in a manner appropriate to the number of pages included. A cover sheet identifying the document as the Basis of Design and including the submittal stage, project title, project location, A-E and Construction contract numbers, and the date shall be provided. If warranted by the size of the package, an index page listing the disciplines and their sub-headings should be provided immediately following the cover sheet. All pages should be numbered, and the page numbers included on the index.

# PART C: CADD DELIVERABLES

## 1. GENERAL CRITERIA STATEMENT FOR CADD DELIVERABLES

In addition to the required hardcopy documents, the A/E shall provide digital deliverables which can be directly transferred to, displayed on, edited within, and output from the core CADD software currently in use by SOUTHDIV. Additional software (often referred to as "third party" software) other than the core CADD software may be used in the preparation of the digital deliverables as long as the above requirement is fulfilled without the presence of the additional software on SOUTHDIV's system. The content of these digital deliverables shall conform to the Tri-Service CADD/GIS Technology Center (TSTC) "A/E/C CADD Standards Manual", in addition to specific requirements in this document. These requirements are not intended to direct a change in the firm's internal procedures; they apply only to files delivered to SOUTHDIV.

## 2. FILES REQUIRED FOR DIGITAL DELIVERABLES

There are three types of files that compose the CADD deliverables: model files, sheet files, and Portable Document Format (.pdf) files. These files must be named in accordance with the Industry Standard file naming recommendations of the emerging National CADD Standard. The syntax for the model and sheet file names is presented in the Construction Specifications Institute (CSI) publication, Uniform Drawing System (UDS), Drawing Set Organization module, and also in the "A/E/C CADD Standards Manual", Chapter 3. Each file type shall have its own directory on the CD-ROM named as follows: "/MODEL/", "/SHEET/", and "/PDF/".

**2.1 Model Files.** Model files contain elements which represent the physical built or natural environment. These elements must always be created at their "real world" size using the appropriate unit of measurement (foot or meter). Scaled views of model files are used to provide the correctly sized graphics for plans, elevations, sections, isometrics, and perspectives on sheet files.

**2.2 Sheet Files.** Each final hardcopy output sheet in the construction document set shall have its own digital sheet file. This file contains all sheet border graphics, text, and symbology and all other elements which exist on the hardcopy output, including electronic seals and signatures where allowed by the state licensing agency. Elements of this file shall be vector, text, dimensions, and other element types native to the core CADD software. This file may be composed from views of "reference" model files or "XREF" model files, as long as the methodology is noted in accompanying documentation and the model file which is referenced is provided in the digital data set. Bit-mapped or raster images may be used only to present digital photographic images or filled logos, and the preferred file format for raster is standard "JPEG" or ".jpg".

In order to simplify plotting both full and half size sheets, all elements of the digital file which represent sheets, border/title block graphics, and "fixed" size symbols, shall be created at their "real world" size using the appropriate unit of measurement (inch or mm). For example, the "cut" sheet dimensions for a D-size sheet shall be 34 inches wide (x) and 22 inches high (y).

**2.3 Portable Document Format (.pdf) Files.** The deliverable requirement is individual sheet portable document format files. The individual sheet portable document format file is a portable document format file containing a single full size page for each D-size sheet in the set of drawings. This file will be named identically to the corresponding CADD sheet file, but with the standard ".pdf" file extension. These sheet ".pdf" files must be produced for a 600 dpi (dots per inch) minimum monochrome pdfWriter printer driver. Files produced by scanning hardcopy documents are not allowed. The A/E shall electronically sign and seal the CADD files prior to converting them to the final .pdf file.

These files will be book marked, indexed, and combined into the "drawings.pdf" file at Southern Division. The book mark will be the sheet file name without the extension. This file will be the drawing set for the Electronic Bid Set; therefore the A/E must validate the accuracy of the conversion from the CADD files to the .pdf files. In addition, the A/E shall provide an ASCII file that lists the .pdf drawing file name and the drawing title. See sample format at end of this PART.

## 3. FILE CONTENT ORGANIZATION

The need to share the ever increasing complexity and volume of information contained in CADD files mandates a certain degree of organization of this information. There is national and international support for the emerging ***National CADD Standard***, which provides guidance in content organization. As a minimum, the following requirements apply to all CADD deliverables.

**3.1 Level/Layer Assignments.** Elements within the CADD files shall conform to the level/layer assignments published as Appendix B of the "A/E/C CADD Standards Manual". These assignments adhere to the format published by the AIA as "CAD Layer Guidelines".

**3.2 Reference files (XREF's).** The use of reference files is encouraged; however, several key criteria must be followed when preparing the final CADD deliverables. Do not embed an absolute path/filename when attaching the reference file . Make sure that all files which have been referenced are included in the /MODEL/ directory. Do not nest reference files; that is, do not include a reference file which itself contains reference files.

**3.3 Graphic Groups (Cells and Blocks).** The use of graphic groups (cells or blocks) is part of efficient use of CADD; however, do not use nested cells and blocks in the final CADD deliverables. Make sure that all blocks and cells are transportable with the host files which use them, without loss of information. Also, make sure that they are included in the /MODEL/ directory.

## 4. FILE CONTENT GRAPHIC ATTRIBUTES

**4.1 Line Widths.** Hardcopy output line widths from the CADD files shall conform to the line widths published in the "A/E/C CADD Standards Manual", Chapter 2.

**4.2 Line Types/Styles.** Elements within the CADD files shall conform to the line types/styles published in the "A/E/C CADD Standards Manual", Chapter 2.

**4.3 Text Type Faces (Styles).** Text type faces (styles) are often erroneously called "fonts"; but a font is a specific type face (style) of a specific size. A type face is the graphic definition of the text characters. For clarity and consistency, a proportional, sans serif type face is recommended. For reasons of accurate translation and almost universal availability, the Arial True Type face is recommended for text in CADD files. Mono-spaced should be used ONLY where it is critical to vertically align text from one row to the next and the CADD software offers no other alternative. The mono-spaced type face in AutoCAD is "Monospaced" and in MicroStation it is Font #3. No third party fonts other than the Arial type style previously described should be used in the CADD files.

**4.4 Patterns, Symbols, and Objects.** All patterns used in the CADD files must be produced by the core CADD software, and not specific to third party software. Symbols and objects are specific applications of the cells and blocks discussed previously.

## 5. FILE CONTENT DOCUMENTATION

Documentation shall be included in the sheet file for each final plotted sheet on the layer/level "X-****-NPLT". The information should be complete and accurate enough for SOUTHDIV to be able to reproduce the final hard copy plot on their CADD system. As a minimum this includes:

plotter/printer name/model;
graphics output language (HPGL, EPS, etc);
list of reference files visible in plot, including sheet borders/title blocks;
list of cells/blocks visible in plot;
list of visible layers/levels;
pen assignments;
other settings which control display and output (locks);
plot date, date of last modification to file, archive date; and
any other consideration needed to produce the plot.

## 6. MEDIA FOR DIGITAL DELIVERABLES

Required media for the final CADD digital deliverable data set is CD-ROM, containing the 3 major directories: /MODEL/, /SHEET/, and /PDF/. Large projects which may require more than one CD-ROM should not split directories between CD-ROM's unless there is no alternative. All file names shall conform to the ISO-9660 syntax and character limitations in addition to previous requirements.

# SAMPLE ASCII FILE FOR PDF DRAWING NAMES

TITLE

T0.pdf T0 TITLE PAGE
T1.pdf T1 INDEX OF DRAWINGS
T2.pdf T2 LEGENDS

CIVIL

C101.pdf C101 OVERALL EXISTING SITE PLAN
C102.pdf C102 EXISTING SITE AND DEMOLITION PLAN
C104.pdf C104 SITE PLAN
C106.pdf C106 GRADING AND STORM DRAINAGE PLAN

ARCHITECTURAL

A101.pdf A101 ARCHITECTURAL SITE PLAN
A211.pdf A211 FIRST FLOOR PLAN
A221.pdf A221 ROOF PLAN
A301.pdf A301 BUILDING ELEVATIONS

STRUCTURAL

S211.pdf S211 FOUNDATION AND SLAB ON GRADE PLAN
S221.pdf S221 ROOF FRAMING PLAN
S501.pdf S501 SECTIONS & DETAILS

MECHANICAL

M311.pdf M311 FLOOR PLAN - PIPING
M701.pdf M701 DUCTWORK DETAILS

ELECTRICAL

E101.pdf E101 ELECTRICAL SITE PLAN
E311.pdf E311 FIRST FLOOR PLAN
E601.pdf E601 LIGHTNING PROTECTION DETAILS

# PART D: COLOR BOARDS

The A/E shall prepare color boards for interior and exterior finishes using actual samples of materials to be incorporated into the project. Each set of color boards shall be submitted in an 8-1/2 x 11 inch format in three ring binders and shall include a copy of the Finish/Color Schedule. Each color board included in the binder shall be dated and shall identify the project by name, site, and construction contract number with an approval block for the customer's signature and date. At the discretion of the A/E, plans, elevations, and details showing special treatments (patterns in floor materials, ceramic tile accents, etc.) or the extent of finishes may also be included. Both interior and exterior finishes and colors shall be included on the Finish/Color Schedule. Proposed colors shall be identified by manufacturer's name and pattern/color number with a disclaimer. Any element eventually requiring color selection shall be included on the color boards and identified on the Finish/Color Schedule.

# PART E: COMPREHENSIVE INTERIOR DESIGN (CID) BROCHURE

**1. HARDCOPY DELIVERABLES:** The A/E shall represent the CID design with detailed technical information and visual presentation in hardcopy format contained in a Concept Brochure (three ring 8.5 in. X 11 in. binder). The Brochure shall consist of the following documents and presentation boards:

a. Architectural Finishes Color Boards (NOTE: These boards are in addition to those described in Part D, "Color Boards".)

b. Furniture and Furnishings:
   1) Finishes Color Boards
   2) Illustration Boards
   3) Placement Plans
   4) Purchasing Documents (Add to updated Concept Brochure at Pre-Final Submission and update all items for Final Submission.)
   5) Cost Lists
   6) Design and Outfitting Cost Data (Add at Final Submittal.)

c. Design Statement

**2. DIGITAL DELIVERABLES:**

**a.** In addition to the required hardcopy *Furniture and Furnishings Placement Plans*, the A/E shall provide digital deliverables which can be directly transferred to, displayed on, edited within, and output from CADD software.

**b.** Also, in addition to the required hardcopy *Furniture and Furniture Purchasing Documents*, the A/E shall provide digital deliverables in Microsoft Word For Windows 6.0 (or later version).

# PART F: COST ESTIMATES

1. GUIDANCE: Detailed guidance on the preparation of Construction Cost Estimates is contained in SODIV-TG-1010, "Technical Guidance for Cost Engineering" (formerly SOUTHDIV 01190). Cost Estimates shall conform to the specific instructions contained therein. Submittals made for review which do not conform to this guide will be returned unreviewed for compliance.

2. OBJECTIVE: The objective of the Cost Engineer is to develop an estimate to reflect the lowest possible price at which the project can be awarded. The lowest possible price is defined as the lowest price at which a responsible Contractor is willing and able to perform the work defined by the contract documents. This requires precise pricing, experienced judgment and accurate assessment of market conditions. "Fattening" of the estimate in either pricing or quantities to be safe will be avoided. It is expected that the final estimate will approximate the low responsive bid within + or - 10%. Estimates that exceed + or - 15% of the low responsive bid will require an immediate post-bid analysis by the A/E to determine the reason for the variance. A written explanation listing specific areas of difference between the Government estimate and the bidding contractors shall be provided to the Cost Engineering Division not later than seven calendar days following notification that a post-bid analysis is necessary. The response shall include an award/reject recommendation based on the findings with full rationale to support the recommendation. The bidders for the contract should not be contacted by the A/E during the post-bid analysis.

3. GENERAL REQUIREMENTS: All estimates shall be formatted using the Work Breakdown Structure (WBS) Systems Descriptions. All construction cost estimates for projects with an Estimated Construction Cost (ECC) over $100,000 require that the estimate be prepared using the SOUTHNAVFAC provided "SUCCESS ESTIMATING AND COST MANAGEMENT SYSTEM" computer program. The A/E is required to run the estimate on his computer equipment using the SUCCESS program and to provide hard copies of the estimates with each submittal. With the final estimate a floppy disk containing the complete estimate shall be submitted. To obtain a copy of the SUCCESS program and price file, the A/E must have a current contract with SOUTHNAVFACENGCOM and sign a licensing agreement. Contact should be made with the PM prior to each submission to reconfirm programmed construction costs for the contract. Where the A/E estimate exceeds 90% of programmed construction costs, recommendations for cost reductions or proposed bid items should be provided. With each submittal the A/E shall provide a brief narrative explanation for the rationale that went into the preparation of the Government Estimate. The rationale shall explain the basis of the estimate and shall address all factors that have a significant impact on the estimate and the various sources of cost data used in the estimate.

4. SUBMISSION REQUIREMENTS:

A. BUDGET ESTIMATE SUBMISSION:

1. The DD 1391 Plus Submission, when required, shall be prepared utilizing

the DD 1391 Plus format. Since no design has been developed, careful attention should be exercised to insure that all major scope requirements are properly considered and evaluated. The DD1391 Plus cost will be based on the latest DOD Guidance Costs and Area Cost Factors. The Supporting Facilities for the project are normally in the range of 15% to 25 % of the Primary Facility cost. If the Supporting Facilities costs are not within this range, then the deviation should be clearly explained in the requirement for the project

2. **The Parametric Cost Estimate (PCE) Submission**, when required, shall be prepared utilizing the SUCCESS program and the parametric cost models. It is this estimate which formulates the cost data presented in Block 9 of the DD Form 1391 Plus from which Congress authorizes and appropriates construction funds for the project. Appropriate allowances must be made for all features of the project at this stage. Arriving at the project cost consists of three steps:

a. Preparation of the Parametric Cost Estimate using the building and site models
b. Preparation of the Budget Estimate Summary Sheet
c. Preparation of the DD 1391 Plus

The Parametric Cost Estimate (PCE) Submission must provide a breakdown of Primary and Supporting Facilities costs in order to transfer costs to the Budget Estimate Summary Sheet and DD 1391 PLUS. The Primary Facility includes all construction items inside the five-foot line. The five-foot line is an imaginary line around the footprint of the building and all work within this area is considered as building cost. An exception is that special construction features (e.g. special foundations), unique to the building because of the location, are to be included under Supporting Facilities. Supporting Facilities are all construction items outside the five foot line such as utility services, site improvements, roads and parking, building demolition; or special construction features unique to the building because of location, such as special foundations (piling, engineered fill, vibroflotation, etc.), sound attenuation considerations, and contaminated soil removal.

B. **SCHEMATIC DESIGN SUBMISSION:** The Schematic Design Submission Cost Estimate, when required, shall be prepared utilizing the SUCCESS program and the parametric cost models. Since little design has been developed, careful attention should be exercised to insure all major cost elements are properly considered and evaluated. The Schematic Design Submission Cost Estimate shall include a system quantity and unit cost for every system in the project.

C. **PRELIMINARY 35% SUBMISSION:** The preliminary 35% Submission Cost Estimate shall be prepared in as much detail as possible. Although the detailed system estimate may lack full definition at this stage, there should be a fully developed listing of the major systems of the project complete with unit costs. It is recognized this estimate is based on preliminary drawings and quotes and that revisions to the cost are likely as the

project drawings and specifications are further developed.

D. **100% SUBMISSION:** The 100% Submission Cost Estimate shall be developed from complete drawings and specifications. The estimate shall be based on a fully developed and accurate quantity takeoff with current unit prices. The A/E shall provide a brief narrative description of how the Cost Estimate was developed and what sources of pricing data were used in the estimate. The A/E shall provide specific rationale for factors that have a significant impact on the Cost Estimate (i.e. - local market conditions. project size, complexity, etc.).

E. **FINAL SUBMISSION:** The Final Cost Estimate should normally require only minor revisions to the 100% Cost Estimate. The estimate should reflect any final adjustments in the project cost to assure the estimate is in line with market conditions expected at the bid date and incorporates all changes that result from the 100% submission review. For all projects, the A/E shall provide (with the final submission only) a copy of the estimate on a 3 1/2" floppy disk.

# PART G: DESIGN CALCULATIONS

Design calculations shall be submitted at the stages of design indicated in the SOW. Calculations shall be organized by discipline in the same order as the drawings and bound in a manner appropriate to the number of sheets included. A cover sheet identifying the document as design calculations and including the submitted stage, project title, project location, AE and Construction contract numbers, and the date shall be provided. An index sheet shall follow the title sheet. Sub-indexes shall be provided for disciplines having a very large number of sheets. All sheets shall be numbered and the page numbers included in the index. The calculations shall include references to all Navy and non-Navy criteria used. Computer outputs shall be properly identified and appropriately referenced as to program name, version and source. Calculations shall be prepared in metric units when metric design is required. For additional information and specific requirements by discipline, see Sections 12-17.

# PART H: DRAWINGS

1. **GENERAL:** The preparation of project drawings must conform to MIL-HDBK-1006/1 (except for the drawing reference system used to identify sections, elevations, and details – see "SYMBOLS" paragraph in this Part), the requirements contained in the A/E Guide, and the requirements of applicable technical guidance. Drawings must be complete, accurate, and explicit. All elements of the work shall be properly coordinated to insure that there are no conflicts between disciplines or between drawings and specifications. Duplication of information on the drawings and in the specifications must be avoided. All drawings must be reviewed by experienced engineers and architects other than the designer at all stages of design before submission to SOUTHNAVFACENGCOM. SOUTHNAV-FACENGCOM may advertise the 100% submittal without review; therefore, it must be complete with all elements thoroughly checked and coordinated. Title blocks shall be complete at this stage including all A/E seals and signatures.

2. **FORMAT:**

**a.** All plans should be oriented so that "north" is to the top or left of the sheet. The orientation should be the same from sheet to sheet. Show north arrow on all plans.

**b.** Show all new work in heavy, dark lines and existing items in light or dashed lines.

**c.** Provide legend, graphic scales, and north arrows on all sheets and provide key drawings where necessary.

**d.** Clearly identify additive bid items.

**e.** Sketches shall not be placed in the specifications.

3. **ARRANGEMENT:** Drawings shall be arranged in the following order:

**a.** Title sheet and index of drawings: For large projects it may be necessary to provide a separate sheet for the index of drawings. Do not provide a cover sheet which shows only the project title and location.

**b.** Vicinity and project location plans. (This sheet may be combined with the title and index sheet when appropriate.)

**c.** Civil and Sanitary (including pump stations and similar facilities)

**d.** Soil Boring Logs

**e.** Landscape and irrigation

**f.** Architectural (including interior design)

**g.** Structural

**h.** Mechanical (heating, ventilation, and air conditioning)

**i.** Plumbing

**j.** Electrical

**k.** Fire Protection

4. **LEGIBILITY:** Drawings including all plans, details, symbols and lettering must be

of a high quality and clear and legible when reduced to half size. Particular attention should be given in the preparation of drawings to the amount of detail shown in a given space. Poor spacing, careless lettering, weak lines and crowded drawings will not be accepted. Shading shall not be used to emphasize details. On small uncomplicated projects, one or more plans may be combined onto one sheet, but never so that the plans will be crowded. Illegible/poor quality drawings will not be accepted.

**5. TITLE BLOCKS:** SOUTHNAVFAC-ENGCOM will provide the A/E the correct title block format. The A/E's firm name shall appear in the title block; consultant firm names shall not. The project title shall be on one line in the appropriate portion of the title block.

**6. DRAWING SIZE:** Full scale drawings will be "D" size (22" x 34"), and must be reproduced at a size of 11" x 17" for review submittals.

**7. SCALES:** Scales shall be appropriate to depict all aspects of the required work without clutter. For additional information refer to Sections 12 through 17.

**7.1 Conventional Scales:** Under the title of each Plan, Elevation, Section, Detail, etc., provide the drawing scale (Example: SCALE 1/8" = 1' 0"). Closely related groups of details having identical scales and tied together with a common title may receive a single indication of scale under their common title.

**7.2 Graphic Scales:** In addition to conventional scales, a series of graphic scales which shall include every scale used on the sheet shall be located at the lower right corner of each sheet. Scales shall be placed in sequence according to size with the smallest uppermost. It is not sufficient to place all scales on one master sheet. Graphic scales must be shown on each sheet, and must be accurate.

**8. SYMBOLS:** All symbols must be large enough to be completely legible. Symbols for project features shall conform to current industry standards. Symbols used to identify sections, elevations, and details shall utilize circles with a two-part reference system. See the last page of this Part for examples illustrating the two-part bubble system.

**9 NOMENCLATURE:** There are many phrases and statements placed on drawings which are considered acceptable in the private sector but are not acceptable for Government projects. The following is a list of typical discrepancies with corrections:

a. INCORRECT: "As instructed by the Architect".
   CORRECT: Should not be used.

b. INCORRECT: "By others."
   "By the Navy."
   "By the Naval Facilities Engineering Command."
   CORRECT: "By the Government."

c. INCORRECT: "By the Electrical Contractor."

"By the Plumbing Contractor."
"By the Plumber."
"By the Elevator Contractor."

CORRECT: Should not be used. No statement is necessary. The Government recognizes only the prime contractor; the assignment of work to subcontractors is the prime contractor's responsibility and should not be done by the designer.

**d.** In the event work which is shown on the drawings is not included in the scope of the contract, use the following:

CORRECT: "Not in contract", "NIC" or "By the Government," or "Government Furnished Equipment, "GFE".

**e.** INCORRECT: "12 GA zinc-coated steel flashing."
"Copper flashing."

CORRECT: "Metal flashing." (Metals are referred to only as metal and not as a particular material or gauge. Material and gauge are covered in the Specifications.)

**f.** INCORRECT: "Sheetrock".

CORRECT: "Gypsum board" (Proprietary names are not permitted.)

**g.** INCORRECT: "Proposed."

CORRECT: "New."

**h.** INCORRECT: "Install _____."
"Furnish _____."

CORRECT: "Provide _____."

*EXPLANATION:* See Construction Contract Clauses for definitions. "Install" is defined to mean that others will furnish the item and the Contractor is only responsible for installation and/or connection. "Furnish" is defined to mean that the Contractor furnishes the item and others are responsible for installation and/or connection. "Provide" means the Contractor is responsible for furnishing, installing and testing the item.

**10. DRAWING NUMBERS:** NAVFAC drawing numbers will be assigned and furnished to the A/E by the PM. Upon submission of final drawings any unused drawing numbers will be reclaimed by the PM and shall not be used by the A/E for any other drawing. Drawing numbers shall be shown on the 100% submission.

**11. A/E CERTIFICATION AND SIGNATURES:** All supervisors, designers, draftsmen, and checkers who are directly concerned with the preparation of NAVFAC drawings shall have their surnames printed on each drawing. A registered corporate member of the A/E firm having the contract with SOUTHNAVFACENGCOM or a responsible person of comparable status shall sign all drawings in the "submitted by" section of the title block. The title and/or index sheet shall be sealed by this same individual. All drawings, other than the title and/or index sheet, shall be sealed by the

architect or engineer in responsible charge of the work portrayed on that drawing. Drawings prepared by consultant to the prime A/E may be sealed by the consultant. The firm name shown in the title block shall be that of the prime A/E. The names of consultant firms to the prime A/E shall not be placed on drawings. Registration seals (of a reproducible media) shall be stamped to the left of the title block. All signatures, seals, and numbering of drawings shall be accomplished prior to the 100% submission of contract documents. Final drawings (full size) shall bear original signatures and seals.

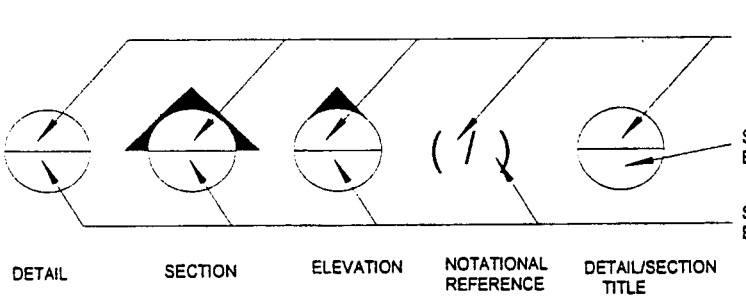
**12. DRAWING MEDIA:** Drawings submitted for review at all stages of design shall be legible good quality photocopy prints on paper. Review copies of the final drawings shall be printed from the pdf files to ensure consistency with the CD ROM bid documents (See Section 11, Part C.) Record (As-built) drawings (full size) shall be ink on 3 or 4 mil mylar. Ink delivery may be via pen plotting or ink jet. Chemically treated or coated media required by electrostatic or thermal processes is not acceptable. Laser printing on drafting film is not acceptable. Decals and stick-on drafting aids are not acceptable.

**13. BINDING:** Individual sets of drawings at each stage of design shall be bound in a manner suitable for the number of sheets and handling requirements.

**14. RECORD (AS-BUILT) DRAWINGS:** A record of all changes occurring during construction will be made by the construction contractor on full size prints of the project drawings. At the conclusion of the project construction, the A/E will be furnished the prints by the ROICC. Mylars (3 or 4 mil) shall be prepared in accordance with MIL-HDBK-1006/1, to show "as-built" changes indicated on the marked prints. The final "as-built" drawings shall show the actual construction only. Optional methods of construction not used should be crossed out and noted "Not Built". Changes to the drawings shall be noted in the Description column of the Revision Block, "Corrected to As-built". Where no changes are made the description shall be "As-Built, No Corrections". All as-built drawings shall be dated the same. Media shall be in accordance with paragraph 12 above (ink on 3 or 4 mil mylar). All sheets shall be dated. The first sheet shall be provided with original A/E seal and signatures. Provide as-built CAD files on CD ROM.

**15. SUMMARY:** The table below summarizes the requirements for drawings at various stages of design.

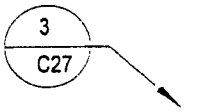
| STAGE/PURPOSE | SIZE | MEDIA | A/E SEALS & SIGNATURES |
|---|---|---|---|
| All stages for review | 11 x 17 (1/2 size) | Good quality photocopy on bond paper. Print paper copies of final drawings from pdf files. | Required at 100% and Final |
| For Advertisement | N/A | CD ROM - See Section 11, Part C | Required |
| Conformed bid documents | 22 x 34 (full size) | CD ROM and paper - See Section 11, Part AD | Required |
| As-builts/record drawings | 22 x 34 (full size) | Ink on 3 or 4 mil mylar | Original seal & signatures on 1st sheet; all sheets dated |



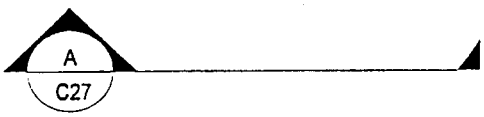

NOTATIONAL REFERENCES TO BE USED IN NOTES, i.e., "FOR DETAILS SEE (3/C27)".

## BUBBLE SYMBOLS

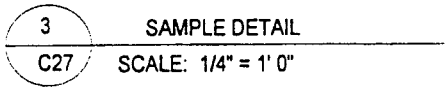
DETAIL REFERENCE BUBBLE



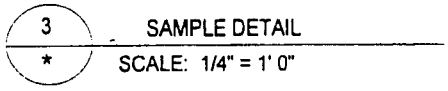

SECTION REFERENCE BUBBLE
(ARROW INDICATES DIRECTION OF VIEW,
PERPENDICULAR TO CUTTING PLANE)




DETAIL TITLE BUBBLE
SINGLE REFERENCE




DETAIL TITLE BUBBLE
MULTIPLE REFERENCE




* C12, C13, C23

TYPICAL DETAIL TITLE

SAMPLE TYPICAL DETAIL
SCALE: 1/4" = 1' 0"

NEITHER REFERENCE NOR TITLE BUBBLES ARE USED FOR TYPICAL DETAILS. A NOTE WILL BE PROVIDED TO DIRECT THE READER TO THE SHEET OF THE TYPICAL DETAIL SUCH AS, "SEE TYPICAL DETAIL ON SHEET S-10." THIS NOTE MAY EITHER BE PROVIDED ON EACH SHEET WHERE THE TYPICAL DETAIL OCCURS, IN A "GENERAL NOTES" BLOCK ON ONE SHEET OR ON THE SHEET WHERE THE DETAIL FIRST OCCURS.

## EXAMPLES OF APPLICATION

# DRAWING REFERENCE SYSTEM

# PART I: ENERGY ANALYSIS

1. GENERAL: The energy analysis process is a systematic approach focused on selecting the most life-cycle cost effective mechanical, lighting, and architectural systems, while maintaining compliance with design energy targets and meeting the project's initial funding constraints. When required by the SOW, the A/E shall perform an energy analysis in accordance with and by the methods prescribed in SODIV-TG-1003, "Technical Guidance for Mechanical Design". The process includes the following events and deliverables:

2. ENERGY AND ECONOMIC INPUT DATA: Energy and economic input data shall be generated at the on-site schematic conference or pre-design conference. Section 7 of SODIV-TG-1003 contains an Energy Analysis Input Data Sheet which must be submitted and approved prior to conducting the energy and economic analyses.

3. ENERGY ANALYSIS: A computer program shall be used to perform hourly energy and system analyses, simulating the heating and cooling loads, architectural features, operational schedules and mechanical system performance for each alternative. Lighting, ventilation, and domestic water heating shall be included in the energy analysis. The preferred program for energy analysis is Trane Company's TRACE 600 program.

4. ECONOMIC ANALYSIS: The economic and life-cycle cost calculations shall also be performed utilizing computer programs. Use of either BLCC4, "Building Life-Cycle Cost, NISTIR 5185", or LCCID, "Life-Cycle Cost in Design, U.S. Army CERL", is required. These programs are available on the CD-ROM Construction Criteria Base System. Both programs automatically incorporate the appropriate escalation rates and discounting techniques for Department of Defense projects.

5. ENERGY/ECONOMIC ANALYSIS REPORT: The completed energy and economic analysis shall be submitted with all backup and supporting data. The report shall include a narrative supporting system selection as well as the completed Energy Analysis Summary Sheet from Section 7 of SODIV-TG-1003.

## PART J: FIRE PROTECTION ASSESSMENT

In order to assess the adequacy of water supply for fire fighting purposes, the A/E shall conduct water pressure and water flow field tests. Results of these tests shall be included in the Basis of Design. See Section 16 of this Guide and SODIV-TG-1008 for detailed requirements regarding these tests.

# PART K: LEAD SURVEY

1. To safeguard against worker exposure to lead, the A/E designer shall have a Certified Lead Inspector perform a Total Lead-Based Paint survey on all areas of the project to be renovated or disturbed. The survey methods shall be in accordance with U.S. Department of Housing and Urban Development (HUD) Guidelines for Evaluation and Control of Lead-Based Paint Hazards in Housing, June 1995, and revised in December 1997. XRF analyzers shall be used to measure the lead content of painted surfaces. Spectrum analyzer values between 0.4 and 1.2 mg/cm2 are inconclusive and require samples to be submitted for laboratory analysis. The number of samples to be taken will vary according to the conditions, but sufficient samples shall be taken to assure that all lead-containing paint that may be disturbed as part of this project is identified and documented. The sample bags or containers shall be sealed and sent to a laboratory certified by the Environmental Lead Laboratory Accreditation Program (ELLAP).

2. For disposal of lead containing construction debris in projects including total or partial demolition, the A/E designer will also have a Certified Lead Inspector analyze a representative core sampling for Toxicity Characteristic Leachate Procedure (TCLP) using EPA SW-846 or equal EPA approved procedure. Subsamples should be taken from walls, windows, floors, ceiling, door frames, and other building components. (The subsamples are normally taken by using a 1-inch drill bit or similar device.) The size of each subsample will be based on the volume of that particular building component relative to the total volume of the anticipated debris. The composite sample must be thoroughly mixed before being analyzed for TCLP. If the test results are below the EPA limit of 5 ppm, the construction debris is considered non-hazardous and can be disposed of at a regular construction landfill (subtitle D). If the test results exceed 5 ppm, the construction debris will come under RCRA hazardous waste regulations and must be disposed of at an industrial landfill (subtitle C).

3. Complete documentation of each survey and all test results are required along with mapping all homogeneous areas and the locations of all sample points to confirm lead-containing paint. Completed forms, field notes, photographs, and all other information including assessments, condition of the paint, and anticipated physical difficulties involved with any abatement action shall be part of the survey report. A photographic record may be used to determine the validity of the proposed corrective actions if deemed necessary. The work shall be conducted under a safety and health plan and in full compliance with all applicable safety and health, and worker protection laws. The survey report shall include as a minimum the following information:

a. Name and certification documentation of Certified Lead Inspector.
b. Qualifications of the laboratory.
c. Types of test analyses conducted.

d. Plan showing location of samples and homogenous areas of lead containing paint including the estimated quantity.
e. Photographs (if used).
f. Results of both TCLP and total lead analyses in percent concentration of lead in paint and ppm TCLP.
g. Recommended actions and a detailed cost estimate.

The A/E shall prepare comprehensive drawings and specifications as required for the removal and disposal of lead-containing paint.

# PART L: NAVFAC DRAWING DISK

Provide a 3.5 inch (1.44Mb) floppy disk or a CD-ROM with a list of all NAVFAC drawing numbers and titles used in this project. (This is the same information that will be required in the project specification Section 00102.) Provide the database in a two column format with the drawing number as one column and the drawing title (all capital letters) as the other column. The database will be appended to an MS Access database file; therefore, a seven digit number, a space, and a maximum forty character drawing title is required. The data must be in ASCII, MS Word, MS Access, or dBase III Plus. If dBase III Plus or MS Access format is chosen, the file structure should be:

| | | | | |
|---|---|---|---|---|
| 1 | NUMBER | Numeric | 70 | 0 |
| 2 | SUBTITLE | Character | 40 | |

# PART M: ON-SITE ANALYSIS

1. The A/E shall conduct an on-site project analysis conference at the activity to systematically define the project. The A/E's preparatory effort will include all preliminary field and office work including: agenda, questionnaires, special studies, literary surveys, code research, analysis of existing field conditions, building evaluations, visits to similar facilities, and preliminary graphical presentation material on data collected.

2. A comprehensive look at project requirements is necessary to define and organize program elements and design features before beginning the schematic design. The intent is to enhance communications among team members; to analyze and address all facts, concepts, issues, and priorities pertaining to the project; and understand the goals, objectives, processes, and relationships of the users being served. The project analysis conference and documentation will address as a minimum:

   a. project goals and objectives
   b. graphic analysis of project site, existing facilities, and other pertinent factual data
   c. interviews, focus groups, and work sessions with user groups and key decision makers
   d. conceptual information (graphically organized and diagrammed)
   e. refined quantitative information including project scope, space allocations, built-in equipment including systems furniture, parking, budgetary cost estimate (primary and supporting facilities), etc.
   f. summary project statements that reflect the unique qualitative aspects of the project
   g. gaming diagrams of spaces graphically illustrating spatial proportions and relationship
   h. outstanding issues to be resolved with indication of responsibility
   i. total team consensus on project definition (all of the above)

3. The A/E will completely document the project analysis conference (a.- i.) in 8 1/2" by 11" format describing the customer's goals and objectives, project data, conceptual considerations, quantitative needs, and summary project statements. It will include the organization and analysis of interview results, questionnaire summaries, investigative reports, economic considerations, cost summary, outstanding issues, conference minutes, and other project information and data. The information in the document shall be the result of a collaborative effort by the total project team.

# PART N: ON-SITE SCHEMATIC

1. The A/E shall conduct an on-site project schematic conference with the customer to develop an approved schematic design. The **project analysis documentation,** which all team members must have a thorough understanding of, is the basis of the Schematic on-site. The preparatory work for this conference will include resolution of any outstanding issues, graphical clarifications of any concepts, and any other work necessary to be completely ready to produce a schematic design. The A/E shall prepare, in advance of the conference: the conference agenda, refinements and clarifications to any project analysis information including gaming diagrams, preliminary costing, and preliminary alternative drawings as necessary to serve as a starting point for the on-site.

2. The total project team attends the on-site schematic conference. The conference is a working session utilizing the total team approach and will continue until the team reaches consensus on a schematic design. Elements of the schematic conference include:

a. validated project analysis documentation (program requirements and square footage)
b. synthesized ideas, options, and alternatives
c. preliminary selection of construction materials and systems
d. preliminary layout of built-in equipment and systems furniture
e. economic analysis
f. preliminary parametric cost estimate
g. responsive schematic design drawings, renderings, and models
h. total design consensus

3. The A/E shall prepare minutes of the conference.

# PART O: OPERATIONAL AND MAINTENANCE SUPPORT INFORMATION (OMSI)

**1. GENERAL:** OMSI consists of all operation and maintenance support information necessary to promote and maximize the efficiency, economy, safety and effectiveness of the life cycle operation and maintenance of the facility. The principal OMSI elements requiring consideration are:

a. Operation and Maintenance Technical Documentation
b. Supply Support (Repair Parts, Fuels, Lubricants, and related items)
c. Maintenance Planning
d. Maintenance and Test Equipment
e. Operating and Maintenance Indoctrination
f. Staffing and Budgeting
g. Inspection Plan
h. Training
i. Extended/Special Warranties
j. Basic Data for Facilities Support Contracts/Performance Work Statements (FSC/PWS)

**2. DEGREE OF OMSI:** The degree of OMSI shall be determined prior to the first submittal. An OMSI Outline, describing systems for which OMSI is to be provided, shall be submitted with the first submittal. Cost estimates for OMSI preparation shall be identified as a separate line item in block 9 on the project's DD Form 1391 when cost is greater than $50,000. If cost is less than $50,000, the OMSI requirement must be entered in block 10 (description), with the cost included in block 9 (primary building cost).

**3. SPECIFIC REQUIREMENTS IN PREPARATION OF SPECIFICATIONS:** After review and approval of the OMSI Outline, the A/E shall develop specific construction contract requirements in each appropriate section of the specifications to insure that adequate information is obtained from the Construction Contractor to permit the A/E to prepare the OMSI package. The 100% and final design submittals will contain a Contractor's OMSI Submittal List, which is a complete list of all OMSI requirements to be submitted by the Construction Contractor and a specific timetable for their submission. The timetable will allow for normal lead times in the contractor's acquisition of major equipment and systems for which an OMSI requirement exists. In the event that the A/E is contracted to prepare the OMSI manuals, the timetable will not compromise the A/E's responsibility to insure that a draft OMSI is prepared and reviewed prior to the facility's Beneficial Occupancy Date (BOD).

**4. SPECIFIC REQUIREMENTS IN OMSI EXECUTION:** A detailed OMSI SOW will be forwarded to the A/E during the advertisement of the construction contract. This OMSI SOW will describe OMSI services and provide a schedule for OMSI deliverables. The draft OMSI will be utilized by the A/E to indoctrinate the

operating and maintenance personnel of the facility and to conduct the operational testing of facility systems. The A/E will prepare final OMSI documentation, incorporating all lessons learned during the indoctrination and operational testing, and submit the completed package in accordance with the OMSI SOW schedule.

# PART P: PERMIT SERVICES

1. The A/E shall prepare an environmental plan which shall be coordinated with the project environmental assessment or environmental impact statement and shall include all applicable environmental issues and considerations relative to the project scope and site. The A/E shall coordinate through the PM with SOUTHNAVFAC-ENGCOM Code 064 as necessary. The environmental plan shall also be coordinated with the Permit Record of Decision (see para. 2 below) and identify all required permits, notifications, approvals or easements that will be required. Provide names and addresses of permitting agencies and a time schedule for obtaining necessary permits and approvals. The schedule shall identify specific permit milestones (identification of permit requirements and applicable criteria, preparation of applications, obtaining permits) for each permit required in relation to the overall design schedule, with the goal of obtaining all permits prior to the final design submittal.

2. In identifying all required permits, the A/E shall prepare a Permit Record of Decision (PROD) which records the decisions made by the A/E regarding the requirement for any of the various types of permits which may be required in the state where the project is located. The PROD shall list permit special conditions and close-out requirements. A form for the PROD shall be provided to the A/E by the PM upon request. The PROD shall be submitted with the first design submittal (schematic or PD) and revised as necessary and re-submitted with the final submittal.

3. The A/E shall obtain all permits and approvals and provide all notifications which are required for the project by Federal, State and local agencies. All effort involved, including but not necessarily limited to preparing applications, obtaining owner/government signatures, paying all application fees, submitting applications and notifications, coordinating with agencies and responding to their inquiries and comments, and obtaining permits, shall be the A/E's responsibility. Design of the project shall comply with all applicable requirements of the permitting agencies. Permit applications shall be signed and sealed by a professional engineer registered in the state where the project is located. Copies of permit applications shall be submitted to the PM at the time the applications are made and not later than the 100% submittal. Permits shall be submitted to the PM with the final design submittal.

4. Design of the Project shall comply with all applicable environmental and stormwater laws, codes, and regulations and the requirements of permitting agencies. The A/E shall include within the contract specifications and drawings all applicable permit conditions and requirements, specifically addressing any and all close-out requirements.

# PART Q: PRE-DESIGN CONFERENCE

1. A pre-design conference will be held at the activity's location to introduce all team members and to familiarize the team with the design process and project. The meeting will include: outlining the design process; discussing team objectives; discussing project goals and objectives; developing the schedule of events; gathering available organizational, site, and other existing information; discussing the unique aspects of the project; determining initial site investigative work; and familiarizing the team with the site. The project team includes representatives from the customer group (major claimant or other funder, activity planner, operator, user, and maintainer), the A/E, and Southern Division.

2. There may be an independent A/E and SOUTHDIV review of the scope of work including the on-site process prior to the pre-design conference. The minutes for the pre-design conference will include a clear written understanding of the team's objectives during the on-site process. Also included will be the initial written goals and objectives specific to the project. The pre-design conference may be held in conjunction with the pre-negotiation meeting.

## PART R: NOT USED

# PART S: RESPONSES TO COMMENTS

Generally, review comments for each design submittal will be provided to the A/E by the PM on 8-1/2 x 11 inch sheets. In some cases comments will be annotated directly on the submittal documents or, if generated at a review conference, will be recorded by the A/E with the conference minutes. Regardless of the means of presentation or recording, all comments must be incorporated or resolved by the A/E and an explanation of the resolution of each comment must be provided by the A/E. This explanation must be provided with the submittal following the one which generated the comments. When comments are provided on 8-1/2 x 11 inch sheets, the responses should be provided in the space designated. When the comments are annotated on submittal documents, the responses may be noted adjacent to the comments on the documents. In other cases, such as when the comments are included in conference minutes, responses should be provided on separate typed sheets.

# PART T: ROOFING ANALYSIS

1. **FOR NEW CONSTRUCTION:** The Roofing Report shall describe the roof system to be installed and include the following as a minimum: structural deck type, vapor treatment, insulation type, thickness, and attachment, membrane type and attachment, and surfacing type.

2. **FOR ROOF REPLACEMENT AND REPAIR:** Investigate the existing construction and conditions as necessary to provide an effective and constructible design. Determine adequacy of substrates and components to receive any attachments necessary. Thoroughly investigate the deck conditions so as to include appropriate repair and safety provisions in the design documents, calling specific attention to areas of unsound material. Such investigation may involve destructive and nondestructive means in addition to visual inspection. Cut a minimum of one core sample on each roof section to be repaired or replaced for purposes of identifying existing materials, attachment, and condition. Provide a permanent watertight patch of compatible materials where the core sample was removed. The Roofing Report shall include the following as a minimum: existing roof construction and method of attachment, deck type and condition noting any areas of deterioration, and a description of the roof system to be installed including vapor treatment, insulation, membrane, surfacing, type of attachment, and photographs (not photo copies) of general conditions and specific areas requiring repair or replacement. Photos shall be indexed or keyed. Areas of deck deterioration shall be clearly identified and appropriate repair and safety provisions included in the final contract documents.

3. **CONSULTANT CERTIFICATION:** Roof investigation for replacement and/or repair, and roof reports for new roofs as well as repair or replacement shall be provided by roofing consultants certified by Roof Consultants Institute (RFI) or the Institute of Roofing and Waterproofing Consultants (IRWC).

# PART U: SAFETY HAZARDS ANALYSIS

**1. INTENT:** The objective of the safety program is to design into the facility all necessary safety features in a timely and cost effective manner. Before the design process begins, hazards known to exist in similar facilities must be identified. The customer is the best source of this knowledge. A Hazards Analysis will be developed by the A/E for projects involving unusual hazards to personnel or property from processes housed in the facility. Contact the project PM to determine if any previous list or analysis has been completed if none has been provided. The methodology for completing a hazards analysis is provided in MIL-STD-882C, System Safety Program Requirements. See Section 8, "Criteria", paragraph 9, regarding OSHA requirements and conflicts of OSHA requirements with DOD and NAVFAC criteria.

**2. REFERENCES:**

a. 29 CFR Parts 1910 and 1926, Occupational Health and Safety Act
b. OPNAV Instruction 5100.23C, NAVOSH Manual
c. AFOSH Standard 161 series
d. P-5100-1 NAVAIROSH Require-ments For The Shore Establishment
e. MIL-STD-882C, System Safety Program Requirements
f. MIL-STD-1472D, Human Engineer-ing Design Criteria For Military Systems Equipment and Facilities
g. EM 385-1-1, U.S. Army Corps of Engineers, Safety and Health Requirements Manual
h. EPA 560/5-85-024, Guidance for Controlling Asbestos Containing Materials in Buildings
i. 40 CFR 116, Designation of Hazardous Substances
j. "Industrial Lead Paint Removal Handbook", by K. A. Trimber, 1991. Available from Steel Structures Paint Council, 4400 5th Ave. Pittsburg, Pa. 15213-2683 (Pub No. SSPC 91-18)
k. NAVSEA Ordnance Pub. 5, Vol. 1, 5th Revision, "Ammunition and Explosive Ashore"

**3. DESIGN CRITERIA:**

**3.1 SCHEMATIC SUBMITTAL:** The "Basis Of Design" must identify any hazards that will require unique design solutions. Also, the designer must avoid including in the design hazards such as confined spaces with limited access and no ventilation. Mechanical and electrical rooms should provide adequate access to maintain equipment and clearance for panels. Address how the design will eliminate or control the hazards identified in the hazards analysis. OSHA Standards are to be considered as the minimum safety standards. A good design will exceed the minimum requirements.

**3.2 HAZARDS ANALYSIS SUBMIT-TAL:** The A/E shall obtain the services of a qualified safety engineer to perform the hazards analysis. A Certified Safety Professional in comprehensive practice or specializing in engineering or system safety, or a registered safety engineer shall be considered as qualified. The hazards analysis shall be conducted in accordance with MIL STD 882C, Task 202. The results of the analysis shall be provided in a report and shall consider the following for

identification and evaluation of hazards as a minimum:

a. Hazardous components such as fuels, propellants, lasers, explosives, toxic substances, hazardous construction materials, pressurized systems, and other energy sources whose uncontrolled release would adversely affect personnel or facilities.

b. Safety related interface considerations among the various elements from above hazards between the facilities and personnel. Examples are incompatible chemicals, inadvertent activation of controls, failure to activate controls, personnel exposure to hazardous energy sources.

c. Environmental constraints including the operating environment, noise, exposure to toxic substances both chemical and process by-products, health hazards, fire, electromagnetic radiation both ionizing and non-ionizing.

d. Safety related equipment, safeguards,interlocks, system redundancy, fail safe design, and barriers to protect personnel.

e. Estimate severity and probability of personnel injury and/or property damage due to uncontrolled energy release or personnel exposure to hazardous conditions.

f. Provide recommendations for elimination or control of the hazards identified above.

**3.3 35 PERCENT SUBMITTAL:** The "Basis of Design" must include resolutions (elimination or control) for each hazard identified in the hazards analysis.

a. Use NAVOSH Instruction 5100.23C for Navy projects.
b. Use AFOSH 161 series for Air Force projects.
c. Ensure that adequate ventilation is provided to avoid 'sick building' syndrome.
d. Industrial ventilation systems must be reviewed by the Naval Facilities Engineering Service Center, Port Hueneme, CA.
e. Locate eye wash and/or emergency shower within 50 ft of eye hazardous operations.

**3.4 100 PERCENT SUBMITTAL:** Drawings must include all safety features required by the design criteria. All known asbestos containing materials that will be removed or disturbed must be located on demolition sheets. Any interference with mechanical, electrical or other building systems must also be noted. Areas that will require lead paint to be removed must be identified.

a. Provide quantities of asbestos and/or lead to be removed.
b. Indicate access and removal route within building.
c. Show locations for decon area and lay down area.
d. Develop work phasing plan for large or complex removals.

**3.5 FINAL SUBMITTAL:** The final submittal shall incorporate all previous review comments.

# PART V: SITE INVESTIGATION RESPONSIBILITIES, REPORTS, VIDEOS, AND VERIFICATION

**1.** The A/E shall obtain site data and investigate existing site conditions, utilities and facilities as necessary to properly integrate design of the Project with existing site conditions. Except as otherwise contracted, site investigation shall include complete and accurate field investigation, topographic survey and verification of location and availability of utility and drainage systems. Existing as-built record drawings when available will be furnished by the client activity for information; however, the A/E shall be responsible for field verifying as-built drawings and other site features which may influence the design of the Project.

**2.** The A/E shall photograph and study the surrounding built and unbuilt environment for purposes of providing compatible design. The A/E shall submit with the first design submittal a video tape record (VHS format) of existing site conditions and prominent facilities adjacent to the project site that will influence the architectural design of the project. The video tape shall be forwarded to the PM and will be studied by the Architectural Review Board to determine the architectural compatibility of the project with existing permanent facilities. The video tape must include an audio description of existing facilities and site features keyed to a site map.

**3.** In the event that a "Lead Survey" is not required as a deliverable, the A/E shall make a lead-based paint probability assessment of all existing facilities being demolished, repainted, or altered as part of this Project. The assessment shall be based on building age, construction document records at the activity, and visual observations. The assessment shall determine the location, condition, and quantity of all materials suspected of containing lead-based paint. The A/E shall exercise due care in accordance with OSHA standards. The results of the assessment shall be included in the Basis of Design.

**4.** The A/E shall submit to the PM a brief report of each site investigation visit. The report shall include the names of personnel contacted, a brief synopsis of the findings of the visit, and a list of problems encountered during the site investigation.

**5.** The A/E shall visit the Project site with ROICC and Public Works representatives during the 100% review period to field verify the accuracy of the design and existing conditions as shown on the construction documents. Any discrepancies or omissions shall be corrected prior to the final submittal. The A/E shall provide a visit report outlining the scope of the site verification and findings.

**6.** All site investigation work, including topographic and soil surveys, shall be coordinated with the Public Works personnel. During the execution of site investigation work, the A/E shall be responsible for obtaining necessary permits

and complying with all applicable laws, codes and regulations, including OSHA regulations. The A/E shall be responsible for all damages to persons or property which occur as a result of the A/E's fault or negligence. The A/E shall take proper safety precautions to protect the public, the property of the public and the Government from physical hazards and unsafe conditions. Upon completion of the site investigation, the A/E shall return the property to its original conditions except as released in writing by the client activity.

## PART W: SPECIAL DESIGN/CONSTRUCTION FEATURES

The A/E shall provide a listing of special design and construction features peculiar to this project. This listing should highlight those features that may require special Government attention during fabrication and/or construction. Examples of such features include special phasing requirements, unusual tolerances, specialized or unique construction features, or critical quality control requirements (submittals, testing or inspection). The A/E shall also identify specific points during the construction sequence where the A/E recommends visits to the job site to allow the A/E to observe construction and provide assistance to the ROICC. If such visits are required they will be authorized by contract amendment at a later date. If the A/E determines that there are no special design and construction features peculiar to this project, the A/E shall provide a negative response to this requirement.

# PART X: SPECIFICATIONS

## 1. DESIGN GUIDANCE:

**1.1 GENERAL:** Project specifications shall be non-proprietary, with no "Gold Plating", adhering to the requirements of MIL-HDBK-1006/1 "Policy and Procedures for Project Drawing and Specification Preparation", SODIV-TG-1006 "Technical Guidance for Specifications Preparation", and to the requirements specified herein. The Guide Specifications listed in the current SOUTHNAVFACENGCOM Index of Criteria ***SHALL BE UTILIZED;*** however, if certain portions of the work in the project are not included in any of the Guides listed, the A/E shall prepare the necessary sections, using the same type format as that in the Guides.

**1.2 GUIDE SPECIFICATIONS:** Over the years the repetitive projects constructed by the Navy have resulted in the establishment of many standard methods of construction, materials and procedures. In addition, legal and regulatory requirements have caused standardization. NAVFAC and SOUTHNAVFACENGCOM have developed guide specifications to cover a considerable number of these situations. The A/E shall use these guides where they are applicable, however, he is ***CAUTIONED TO EDIT AND MODIFY THEM TO SUIT THE PROJECT REQUIREMENTS.***

**1.2.1 Which Guides to Use:** The A/E shall utilize the Guides listed in the current SOUTHNAVFACENGCOM Index of Criteria, which is updated approximately every three months. This document is located on the SOUTHNAVFACENGCOM criteria web page at http://www.efdsouth.navfac.navy.mil/facilities_acquisition/criteria/index.htm. A/E shall obtain the Guides at his expense, as stated in paragraph titled "OBTAINING DESIGN CRITERIA" in Section 8. Note that some of the guides listed also include a SOUTHNAVFACENGCOM Interim Regional Revision. The A/E shall incorporate these Interim Regional Revisions (provided by SOUTHNAVFACENGCOM) in the specifications, where applicable.

**1.3 FEDERAL AND MILITARY SPECIFICATIONS:** Federal and Military specifications and standards are ***NOT*** stocked for issue by SOUTHNAVFACENGCOM. The A/E is responsible for procuring these documents as necessary. See Section 8 for ordering information.

## 2. SPECIFICATIONS PREPARATION:

The project specifications shall be prepared utilizing the "SPECSINTACT" system of the "CONSTRUCTION CRITERIA BASE" (CCB). See SODIV-TG-1006 for additional requirements on specifications preparation.

## 3. SUBMITTAL REQUIREMENTS:

### 3.1 GENERAL (ALL SUBMITTALS):

a. All submittals shall be on 8-1/2 X 11 inch paper.
b. No "Cut-and-Paste" specifications permitted.

c. The number of copies required for each submission shall be as stipulated in the Statement of Work.

**3.2 35% SUBMISSION AND INTERIM SUBMISSION (OUTLINE SPECIFICATIONS):** Provide a table of contents listing the numbers and titles of all Specification sections that will be included in the project. Indicate the issue date of each Guide Specification, and all applicable Interim Regional Revision dates, for each Guide. The purpose for including these issue and revision dates is to aid us in determining whether or not you have the latest criteria. For sections for which we have no Guide, show an appropriate 5-digit number, and title, followed by "A/E will prepare section without a Guide."

**3.3 100% SUBMISSION:**

a. Adhere to SODIV-TG-1006 for specifications preparation. A few excerpts are:

1) Specifications shall be single-spaced, in Letter-Quality type.
2) Specifications submittals shall be on *ONE SIDE OF PAPER ONLY.*
3) All copies of Specifications shall be bound in the left margin or in the upper left-hand corner.

b. Marked-up Guide Specifications will *NOT* be acceptable.

c. Specifications shall be complete in every respect, so that, if need be, project could be advertised using 100% Specifications.

d. Ensure that the Basis of Bid, Time for Completion, and Liquidated Damages statements, properly executed, are included.

e. Ensure that the Submittal Register, with Column (e) properly filled in, is included in Section 01330.

**3.4 RE-SUBMISSIONS AND EXTRA SUBMISSIONS:** Requirements for all submissions between the 100% Submission and the Final Submission shall, as a minimum, be as stipulated for the 100% Submission.

**3.5 FINAL SUBMISSION:**

a. Adhere to SODIV-TG-1006 for specification preparation. A few excerpts are:

1) Specifications shall be single-spaced, in Letter-Quality type.
2) Provide a set of "ORIGINAL" specifications in addition to the required number of copies.
3) Specification ***originals*** shall be printed from the Adobe Acrobat pdf files on ***ONE SIDE OF PAPER ONLY*** (Two-sided copies will ***NOT*** be accepted for originals). The final ***copies*** may be printed on both sides of paper.
4) Specifications ***copies*** shall be bound in the left margin or in the upper left-hand corner.

b. Original Specifications shall be unbound and securely packaged such that they will not be subject to damage during shipment. Do *NOT* roll Specifications (package them in flat position).

**c.** Cover sheet shall be signed and dated by a corporate member of the A/E firm.

**d.** Specifications shall be complete in all respects, ready for advertisement and bidding, with all 100% (and subsequent) review comments incorporated or resolved. Return the copy of the previous submission specifications marked with Navy comments.

**e.** Ensure that the Basis of Bid, Time for Completion, and Liquidated Damages statements, properly executed, are included.

**f.** Ensure that the Submittal Register, with Column (e) properly filled in, is included in Section 01330.

**g.** In addition to the hard copies required, provide a "SPECSINTACT" system back-up copy of the completed project specification on 3-1/2 disk. (Do ***NOT*** use DOS "Backup" for this purpose.)

**h.** Provide a complete electronic copy (on 3-1/2" disk or CD ROM) of the specification in pdf format. These files may be used as the bid documents and therefore must contain a complete set of specifications including the cover sheet with A/E's electronic signature, all technical specification sections, forms, sketches, reports, etc. Use Adobe Acrobat software to convert the native SPECSINTACT or word processing files to pdf format. Sketches or forms that are not in electronic format may be scanned and then converted to pdf format.

# PART Y: SUBSOIL INVESTIGATION AND REPORT

The A/E shall conduct any subsurface soil investigations that are necessary to properly integrate the project design with the existing soil and site conditions. The scheduling and conduction of the investigation must be coordinated with the local activity Public Works Officer or activity representative. The A/E shall prepare a soils investigation report that includes a description of the type of tests and investigations conducted, results of the tests and investigations, and recommendations.

# PART Z: USER QUESTIONNAIRE

The A/E shall prepare and distribute a User Questionnaire intended to obtain quantitative and descriptive information and criteria from the facility users necessary to complete design of this project. Questionnaires will include questions pertaining to staffing, adjacencies, relationships, furniture and furnishings, equipment, power requirements, heat load, and other special requirements.

# PART AA: OZONE DEPLETING SUBSTANCE (ODS) MEMORANDUM

1. **BACKGROUND:** Section 326 of the FY93 Defense Authorization Act restricts Department of Defense award of contracts which specify or require the use of Class I ODS, and Section 6-6-18 of OPNAVINST 5090.1B similarly restricts the sale of any Class I ODS outside of the Navy.

2. **POLICY:** No Class I ODS will be specified or included as part of any construction contract. Furthermore, when demolition is involved, any existing Class I ODS will be retained by the Navy.

3. **SITE INVESTIGATION:** For projects including the removal of existing Class I ODS materials or the demolition of equipment containing Class I ODS materials, the A/E shall identify the type and quantity of such materials, include this information in the project drawings and specifications, and require the contractor to recover and turn the materials over to a central Government repository for use in servicing mission essential equipment (see NFGS-02220).

4. **ODS CERTIFICATION:** For all projects, as part of the final submittal, the A/E shall provide a memorandum for the record that contains the following statement: "I have reviewed the drawings and specifications for Construction Contract Number [ ], [title & location], and have determined that they do not require or permit the use of Class I ozone depleting substances (ODS). Furthermore, if the project includes the removal of existing Class I ODS materials or the demolition of equipment containing Class I ODS materials, the specifications require the contractor to recover these materials and ship them to the DOD ODS reserve at the Defense Depot Richmond, VA." This statement shall be signed and dated by the registered person(s) in responsible charge of the project or applicable portion(s) of the project.

# PART AB: ARCHITECTURAL RENDERING

1. Provide a perspective sketch of the proposed rendering with labeling for approval. The sketch should be a two vanishing point view, accurately proportioned, of front and primary approach sides of facility. For all Air Force projects, the A/E shall provide "bird's-eye view" renderings which show the architectural style, massing, and compatibility with the established base urban design. For Navy and Marine Corps projects, consider bird's eye view renderings for multi-building/large site developments.

2. Based on approved sketch, render exterior finish indications which are coordinated with "exterior finish material samples".

3. Provide the original color rendering and the number of color full size photo copies which are indicated in the Statement of Work (indicated size is frame size). Provide a photo negative of the rendering. All architectural renderings will be mounted on acid free board, double matted (acid free matting), and metal framed with non-reflective glass, as well as appropriate labeling.

4. **Labeling:** The project title, location, contract number, SOUTHDIV (name and logo) and A/E identification, and date of reproduction are to be printed on the back of framed renderings and all photocopies. Framed renderings are to include the project title, location, SOUTHDIV name and logo, Project Team list, and A/E identification on the matting.

5. **Construction Sign Rendering:** Provide the number of color full size photo copies of the architectural rendering which are indicated in the Statement of Work (indicated size is size of photo copy). Mount the photo copy on 1/4" water resistant hardboard (this will be installed by the construction contractor as part of the construction sign).

# PART AC: MODEL

1. Provide Mass Model showing relative and scaled massing of physical shape of facility relative to site and neighboring structures.

2. Provide Presentation Model showing massing, fenestration, exterior materials and colors, scaleable items (i.e., trees, cars, people), etc.

# PART AD: CONFORMED BID DOCUMENTS

**1. CHANGES TO ELECTRONIC FILES:** The A/E shall maintain up-to-date electronic drawing and specification files throughout the bidding phase of the construction contract. Specifically, the A/E shall be responsible for incorporating the following changes into the master electronic drawing and specification files:

**a.** Changes and amendments made by SOUTHNAVFACENGCOM after receipt of the A/E's final design and prior to award of the construction contract for the purpose of correcting or clarifying the A/E's final design submittal.

**b.** All changes and amendments prepared by the A/E prior to award of the construction contract.

Paper or electronic copies of changes and amendments produced by SOUTHNAVFAC-ENGCOM will be provided for use in updating A/E files.

**2. CONFORMED BID DOCUMENTS:** Drawings and specifications that contain all pre-award amendment changes are known as conformed bid documents. The A/E shall prepare conformed bid documents as follows:

**a.** Drawings: Annotated with revision symbols to identify changes made by amendments. Also the revision block for <u>all</u> drawings, whether changed or not changed by amendment, shall contain the words "CONFORMED BID DRAWING". To avoid replotting unchanged sheets, "CONFORMED BID DRAWING" may be stamped on a paper copy of the unchanged original solicitation drawings. Also add "CONFORMED BID DRAWINGS" in large letters on the first drawing. All changed drawings shall be replotted, signed and sealed by the A/E.

**b.** Specifications: Add "CONFORMED BID SPEC" as a footer centered at the bottom of all specification pages and in large letters on the specification cover sheet.

Conformed documents must incorporate changes <u>exactly</u> as indicated on the pre-award amendment and <u>shall not include</u> any changes that were not part of a pre-award amendment. This can best be accomplished by revising the original CAD drawing files and then reproducing the revised details on the SOUTHDIV 8 1/2" x 11" amendment format. If changes are needed that were not part of a pre-award amendment, the A/E shall prepare a post-award amendment as a separate document for negotiation as a construction modification.

**3. SUBMISSION OF CONFORMED BID DOCUMENTS:** SOUTHNAVFACENG-COM will provide a copy of the conformed drawing CD ROM to the successful construction contractor for use in preparing shop drawings, coordinating work, etc. Depending upon the number and complexity of pre-award amendments, paper copies of the conformed drawings and specifications may also be provided to the contractor and other interested parties. When notified by

SOUTHNAVFACENGCOM, the A/E shall provide the following:

a. Within 3 business days: conformed drawing CD ROM.

**or**

b. Within 5 business days: conformed drawing CD ROM, conformed specification CD ROM, paper copies of full and 1/2 size drawings, and paper copies of specifications.

Paper and electronic copies shall contain <u>all</u> drawing sheets and specification pages (annotated as described above). Paper copies shall be signed and sealed by the A/E.

# SECTION 12

# CIVIL SUBMITTAL REQUIREMENTS

**1. DESIGN GUIDANCE:** Prior to beginning work, read SODIV-TG-1005, "Technical Guidance for Civil Engineering", for specific technical requirements. The Civil portion of any design project shall be prepared, by a qualified civil engineer, in a thorough and logical manner. Include information in sufficient detail for all phases of the work to permit a complete technical review.

**2. SUBMITTAL REQUIREMENTS:** The following requirements shall be met at each submittal.

**2.1 SCHEMATIC SUBMITTAL:** The Civil portion of the Schematic Submission, when required, shall include the following:

**2.1.1 Basis of Design:**

**2.1.1.1 Site Development:** Describe the site of the project, its natural advantages and disadvantages relative to the proposed project, natural vegetation, trees and topography which can be utilized in the enhancement of the completed facility. Outline the proposed landscaping and other site work necessary to complete the site development. Include physical security requirements and considerations.

**2.1.1.2 Roads, Driveways, Parking Areas, Walks and Railroads:** Provide the following information:

a. A statement of general soil conditions, with a brief outline of soil exploration and testing performed.

b. The type and volume of traffic, controlling wheel loads and types and/or classes of roads under consideration.

**2.1.1.3 Water Supply:** Provide the following information:

a. Explanation of existing system, covering the type, capacity, condition, present water use and unsatisfactory elements of component parts for major extensions.

b. Statement of type of construction and materials for mains.

c. For distribution systems, statement of design domestic and fire flow, residual pressure, and elevation differentials (should include designer's estimate of pipe sizes).

d. Statement of sizes, elevations, capacities, etc., as can readily be determined without long computations or design consideration for reservoirs, treatment units, pumping plants, well pumps, and such units.

**2.1.1.4 Sewers and Sewage Disposal Systems:**

a. Explanation of existing system covering particularly the type, capacity, condition, present flow, and unsatisfactory elements of component parts for major extensions.

b. Interpretation of degree of treatment necessary by effluent requirements and units necessary for treatment.

c. Statement of materials to be used for sewer systems and sewage treatment plants.

**2.1.1.5 Fencing:** Describe type, height, clear zones, and justification for new fencing. Describe height and type of existing fence on or adjacent to the project site. Include a description of any special phasing required to maintain security during removal and installation of fencing.

**2.1.1.6 Environmental Pollution Control:** A statement explaining expected environmental pollution and the proposed method of control. A detailed description will be necessary for those facilities directly related to controlling air and water pollution; such as sewage treatment plants, industrial treatment facilities, incinerators, smoke elimination facilities and other similar projects.

**2.1.1.7 Storm Drainage:**

a. A statement of the requirements for storm water management for the particular state in which the project is located. Discuss security measures to be used for ditches or pipe larger than 10 inches which will pass beneath security fencing.

b. Explanation of the design approach to be taken, including materials selection.

**2.1.1.8 Airfield Pavement:** Provide following information.

a. Justification for the pavement design used. A brief synoposis shall be included to identify the logical alternative and discuss the rationale used to determine the best pavement sections including identification of design aircraft, gross loading, number of passes, subgrade support and how each was determined. Careful attention shall be given to all factors such as criteria, cost, local conditions, construction schedule and methods, availability of materials, drainage, etc. A brief description of the pavement section to be used shall be provided and, as a minimum, include the sufsurface condtions and the method of analysis and design.

b. Alternate designs for both concrete and flexible pavement (contractor's option) for non-critical areas as required by MIL-HDBK-1190.

c. A statement of general soil conditions with a brief outline of soil exploration and testing performed.

d. Any deviations from Design Manuals or other planning standards with reasons therfore.

**2.1.2 Drawings:** The following drawings shall be included and shall be developed to the extent indicated. Standard details need not be shown on this submission.

a. ***Location Plan***: Show project location in relation to ***MAJOR*** landmarks or features of the installation. Also show the proximity to related facilities which influence project operations. Use insets with an overall view of the station to show widely separated but related facilities. The General Location Plan shall include as much of the activity as necessary to convey meaningful information to someone who has not visited the facility.

b. ***Existing Site and Demolition Plan***: Provide a complete and accurate map of the site, drawn to an appropriate scale, showing existing contours and spot elevations, as well as all topographic features. All bench mark control points, markers or monuments shall be clearly referenced and described. The survey shall show locations of borings and shall be oriented so that North is to the top or

to the left of the sheet. The plan shall be provided with graphic scales, keymaps, north arrow, datum plane and station coordinates of bench marks, and legend to define all symbols used. All demolition should be shown on this drawing and indicated by legend. Demolished features should *NOT* be shown on subsequent drawings. The new facility should be outlined (by broken line) at the proper location on this sheet.

c. *Site Plan*: This plan should show all new aboveground site features, complete with dimensions, traffic flow patterns, parking layout, striping, and handicapped parking requirements. Location of new facilities should be referenced to existing, identifiable surface features or survey control points.

d. *Utilities Plan*: This plan should show all existing and new water and sewer lines with sizes indicated. The water system should include the approximate elevation of the existing lines and the location of all valves and hydrants. The sewer system should include the location of manholes and pump stations, the inverts and top elevations of all manholes and cleanouts, and slopes of lines. Rough details of pump stations, and other special structures should be provided. Show storm drainage lines; include line sizes and material type, slopes and appurtenances. Mechanical and electrical utilities should also be shown on this plan.

e. *Other Drawings*: Prepare additional drawings as required to convey the scope and features of the project.

**2.1.3 Calculations:** The design of all civil engineering aspects of the project shall be in accordance with SODIV-TG-1005, referenced criteria, and other design criteria as required. Calculations supporting the design shall be submitted. All references, codes and design data used in the calculations shall be included and source indicated in the calculations.

**2.1.3.1** For airfield pavement and large paving projects include the following:

**a. Subgrade support value** - soils investigation shall include the determination of the allowable "K" values (for concrete pavement) or "CBR" value (for asphalt pavement) for the subgrade soils.

**b. Loads** - Aircraft identification(s) and gross weight, number of passes, equivalent axle loads, etc.

**c. Materials** - includes all material to be used and their allowable applications. The list shall include material's type and grade and class.

**d. References** - includes all criteria, accepted standards, manuals, codes, texts, papers, or other design information used in the analysis and design that is accepted in a public domain. All references shall be appropriately identified. Abbreviations such as ASTM, ACI, etc., are acceptable. Also include name, manufacturer, version and date of computer program/software used for analysis and design.

**e. The analysis** for the design of pavement sections and critical drainage structures.

**f. Computer outputs** shall be identified similar to the calculations and may be referenced as an appendix or attachment.

**2.2 35% SUBMITTAL:** For the 35% submittal, the following shall be included and shall be developed to the stage indicated:

**2.2.1 Basis of Design:** The Basis of Design should be modified as necessary to supplement

the preliminary drawings, specifications and estimates.

**2.2.2 Design Calculations:** The calculations shall support the plans and specifications. Complete calculations shall be submitted for all design features. All references, codes and design data used in the calculations shall be included and source indicated in the calculations.

**2.2.3 Design Drawings:** The following drawings shall be included and shall be developed to the extent indicated.

a. ***Location Plan***: Show project location, haul routes, borrow areas, disposal areas, laydown and storage areas and plant sites. This drawing may also serve as a cover sheet and should include a vicinity map. An Index of Drawings is required and may be shown on this drawing.

b. ***Existing Site and Demolition Plan***: The requirements of paragraph 2.1.2.b are to be satisfied and expanded upon as required to represent the 35% submittal stage.

c. ***Site Plan***: The requirements of paragraph 2.1.2.c are to be satisfied and expanded upon as required to represent the 35% submittal stage.

d. ***Grading and Storm Drainage Plan***: This plan includes all existing and finish contours at maximum 1.0 foot interval, existing and finish spot elevations as necessary to insure proper drainage, ditches, existing and new storm drainage pipes with sizes and slopes shown, manholes, catch basins, curb inlets, headwalls, and other necessary structures. Clearly indicate locations of security barriers on man passable pipes and ditches which pass under security fences.

e. ***Utilities***: The requirements of paragraph 2.1.2.d are to be satisfied with the exception that storm drainage features shall now be shown on the grading and drainage plans. These requirements shall be expanded upon as required to represent the 35% submittal.

f. ***Soil Boring Logs***: Logs should be referenced to the boring number in the plan sheet where shown. Soils should be identified in accordance with the Unified Soil Classification System. Standard penetration test blow counts and ground water table elevations shall be shown. Soil boring log elevations shall be referenced to true bench mark elevations shown on grading plan, and a note on the sheet shall indicate when and by whom the borings were taken. The drawing(s) should be complete at the 35% stage.

g. ***For Airfield Pavements and other large paving projects***, the following drawings are also required:.

1) **Geometic Layout**· Stationing, curve data, lengths, widths, clearances and other dimensions necessary to locate and layout the horizontal placement of the work. Except for small projects and as approved by SOUTHNAVFACENGCOM, all dimensions shall be tied into the local coordinate system.

2) **Paving Plan**: Identify each type of pavement. Provide details and/or schedules indicating pavement alternates or options.

3) **Profile:** Show existing and new profiles for runways, taxiways and roads. Identify in the profile the location and depth of any crossing ulitites.

**4) PC Concrete Joint Layout:** Locate and identify all joints required.

**5) Other Plans and Details:** As required by project.

**2.3 INTERIM SUBMITTAL:** Interim submittals will sometimes be required by the Statement of Work (SOW), which will indicate the required completion percentage (e.g., 60% interim submittal). Specific submittal items will be identified in the SOW, however, the primary components will normally be the drawings and specifications. Drawings shall include all requirements of the 35% submittal plus additional detail to bring them to the specified completion percentage. See the Section 11 for interim specifiication requirements.

**2.4 100% SUBMITTAL:** The 100% submission should include all drawings required for a 35% submittal plus all necessary detail sheets to complete the civil engineering portion of the project. In addition, other sheets required to show such information as profiles and cross sections for roads and ditches, profiles of sewer and drainage systems, and details of all appurtenances shall be included. The designer should review all Guide Specifications to be used in connection with the Civil Drawings. Most of the Guide Specifications contain design information in notes that indicate what must be shown on the drawings for proper coordination with the specifications. Some Guide Specifications contain standard details which must be included on the drawings if they are applicable to the project.

**2.4.1 Calculations:** Revise the 35% calculations and supplement as required for 100% design. Submit in same format as for 35% design.

**2.4.2 Drawings** shall meet the following requirements:

**a.** ***Location Plan:*** See 35% Drawing Requirement.

**b.** ***Existing Site and Demolition Plan and Detail Drawings:***

1) All items to be demolished clearly shown
2) Limits of removal
3) Complete description of items to be removed
4) Details, where necessary, of items to be removed
5) Depth and dimension of affected pipelines and foundations

**c.** ***Site Plan and Detail Drawings:***

1) All necessary layout dimensions
2) Street profiles
3) Pavement sections and joint layout and details
4) Handicapped provisions details
5) Parking and other pavement marking
6) Curb and gutter details
7) Walk details
8) Pavement repair details (i.e. utility crossings)
9) Guard post details
10) Fencing and gates location and details including security barriers for openings beneath fences and gates
11) Wheel stop details
12) Construction limits (if critical)
13) All existing aboveground features which are not to be demolished
14) Street sign details

**d.** ***Grading and Storm Drainage Plans and Detail Drawings:***

1) Existing and finish contours
2) Existing and finish spot elevations
3) Ditch profiles and sections
4) Erosion protection

5) Storm drainage piping layout, new and existing including security barriers
6) Storm drainage structure details including security barriers
7) Slopes and inverts of all pipes and profiles where necessary
8) Inverts and top elevations of all structures
9) Frames, grates and covers details
10) Class or gauge of pipe
11) Clearing and grubbing limits
12) Grassing limits
13) Benchmark information

e. *Utility Plans and Detail Drawings*:
1) Overall layout of systems, showing line sizes
2) New and Existing systems shown
3) Valve and fire hydrant locations
4) Sizes of all components of systems indicated
5) Building services coordinated with building plumbing drawings
6) Separation of water and sewer lines
7) Backflow preventers
8) Manhole spacing and details (including top and invert elevations)
9) Cleanout location
10) Pipeline profiles (gravity sewers normally, plus force main when required by State Permitting Agency)
11) Manhole, frames and cover details
12) Pump station location and details
13) Air release valves location and details
14) Locations coordinated with existing and other utilities

f. *Soil Boring Logs* - See 35% Submittal.

g. *For Airfield Pavement and other large paving projects* include the following drawings:

1) **Paving Plan and Details**
a) Identify each type of pavement
b) Provide alternative designs for rigid and flexible pavements where options are permissible and economically feasible.
c) Provide sectional details and/or schedules to show each type of pavement structure.
d) For new flexible pavements, identify wearing course, binder course, tack coat, prime coat, base course, subbase course, and subgrade.
e) For new rigid pavements, identify PCC paving reinforcement where required, base course, and subgrade.
f) For flexible overlay construction, identify wearing course, binder course, leveling course, tack coats, seal coats, surface treatments, existing pavement preparation, geotextile interlayers, and other details as appropriate.
g) For rigid overlay construction, identify PC concrete, bond breaking interlays, bonding requirements, existing pavement preparation, and other details as appropriate.
h) Bid information such as quantity of cracks in pavement to be sealed.
i) Graphic scale and north arrow
j) Applicable notes
k) All sections and details neccessary for construction

2) **Construction Sequence**: Provide plans, details and schedules of phasing and sequencing of new work. For projects having complex phasing requirements, consider the use of CPM or other network system to graphically portray Interface and Phasing Requirements. Identify items of work and constraints of each phase. Show temporary roads, detour routes, temporary marking, and special traffic control requirements. Coordinate all work with the

Acitivity's (station's) operations, security, fire protection, and safety personnel through the station's Public Works Officer.

3) **PCC Joint Layout Details:**
   a) Plan layout of joints including butt and keyed construction joints, weakened planes and other control joints, thickened edge and dowelled expansion joints.
   b) Rigid/flexible pavement juncture details
   c) Joint, sealer and groove details
   d) Paving structural transition details
   e) Featuring and keying details
   f) Reinforcing and dowel details
   g) Mooring eye location plans and tails

4) **Marking Plan and Details:**
   a) Airfield marking plans and details
   b) Simulated carrier deck markings
   c) Temporaily closed facility markings
   d) Road and parking area markings
   e) Sign details and schedules

h. *Other Drawings:* As required.

**2.5 FINAL SUBMITTAL:** The final submittal shall incorporate the corections and comments noted on the 100% submittal. Provide written response to 100% review comments.

# SECTION 13

# ARCHITECTURAL SUBMITTAL REQUIREMENTS

**1. DESIGN GUIDANCE:** Prior to beginning work, read SODIV-TG-1001, "Technical Guidance for Architectural Design", for specific technical requirements.

**2. SUBMITTAL REQUIREMENTS:** The following requirements shall be met at each submittal.

**2.1 SCHEMATIC SUBMITTAL:**

**2.1.1 Basis Of Design:** The basis of design must include the following information:

a. *Introduction:* Briefly describe the purpose of this project and extent of construction. Include and refer to supporting Appendices at the end of the Basis of Design which should include DD Form 1391 and design conference minutes. For USAF projects, include AF Form 1158 - Facility Summary.

b. *Architectural Compatibility:* Briefly describe architectural style of buildings in the immediate vicinity of the site and other installation/base buildings having functions similar to the facility being designed. Discuss the approach to achieving architectural compatibility with nearby facilities (both existing and future construction). Identify design changes made in response to previous Architectural Review Board (ARB) comments.

c. *Type of Construction:* Describe type of construction chosen with refereuce to anticipated building life and degree of combustibility.

d. *Building Insulation:* Describe types of insulation to be provided with specific R-values for roof(s), walls, floor(s), etc.

e. *Construction Materials and Finishes:* Describe materials for all major items of construction including interior/exterior finishes. The exterior finishes shall be submitted as described in Section 11, Part D, "Color Boards".

f. *Discussion of Physical (barriers) and Electronic Security* requirements including listed criteria defining those requirements. Address design features proposed for use in the construction.

g. *Construction Contract Furniture, Furnishings and Equipment List:* List the furniture and furnishings integral to the facility that will be included in the construction contract such as systems furniture, fixed seating and all other SID elements (bulletin boards, marker boards, lockers etc.).

h. *Life-cycle Cost Comparison:* Include data for selection of (a) exterior wall systems, (b) interior wall/partition systems, (c) roof system including membrane and

configuration (slope and structural system), (d) floor systems/finishes, and (d) ceiling systems/ finishes. Show diagrams of system/finish options (three minimum of each type) with labeled components and related costs (tabular form showing first cost and life-cycle maintenance cost). Concisely list advantages /disadvantages for each system and identify system chosen with reason for selection. This data, consisting of items listed above, may be included as an appendix if referenced in the Architectural Basis of Design.

i. *Space Programming:*
1) Provide gross area calculation.
2) Provide a ***room by room*** tabulation including:
   a) Net area for each room indicating both the programmed area and the area as designed.
   b) Verify that room size is adequate for built-in and loose equipment and furniture and for the identified function.
   c) Identify the personnel by function and grade.

j. *Water and Moisture Proofing:*
1) Identify roofing membrane material. If single ply, identify proposed generic type.
2) Describe means for controlling water penetration and moisture migration through exterior walls.
3) Describe typical roof and wall sections.

**2.1.2 Drawings:** Drawings shall be developed to the extent indicated and drawn to scale.

a. **Architectural Plans**
1) Room/Space Names with net square foot (SF) labeled and special equipment or furnishings indicated. Differentiate "secure area" walls from standard walls.
2) Door and window locations.
3) Dimensions and pertinent notes.
4) Toilet fixture locations with handicap accessible type noted.
5) Area Tabulation Diagram with gross SF shown.
6) Roof Plan showing slope, crickets, and anticipated roof mounted equipment.

b. **Architectural Elevations**
1) Exterior finish material and color notations coordinated with "exterior finish material samples".
2) Anticipated mechanical/electrical equipment.
3) Downspouts, flashing, crack control joints, expansion joints, and brick coursing.
4) Doors with frames and windows with frames, mullions, and operating sash.
5) Exterior grade and floor elevation(s).
6) Extent of new additions/alterations related to existing construction.
7) Notes identifying special construction elements related to architectural compatibility or other requirements.

c. **Architectural Building Section**
1) Exterior wall type notations (cavity/ veneer)... do not draw wall construction in detail.
2) Outline of interior spaces and exterior limits of walls, floors, roofs, and shading devices.

**d. Architectural Rendering (refer to Section 11 Deliverables - Part AB: Architectural Rendering)**

**e. Model (refer to Section 11 Deliverables - Part AC: Model)**

2.2 35% SUBMITTAL: The architectural portion of the 35% submittal shall consist of the following:

2.2.1 **Basis of Design:** Same as requirements in Paragraph 2.1.1.

2.2.2 **Drawings:** The design shall be developed to approximately the 35% level and shall include the following items:

a. **Architectural Floor Plans** (drawn at 1/4" scale for small and 1/8" for large buildings) showing:

1) Types of walls/partitions (secure area construction and acoustical and fire rating), door swings, door openings, windows, and stairs/steps/ramps with pertinent dimensions and notes.
2) Rooms/spaces with names and numbers. Show furniture and furnishings on the "35% Generic Furniture Footprint". The furniture that is to be included in the construction contract, the loose conventional furniture and any large equipment provided by the customer should be included in the plan.
3) Key Plan on each floor plan sheet when the floor plan is not contained on a single sheet.
4) Enlarged plans at 1/2" scale for toilets, typical dormitory bedrooms, kitchens, stairs, etc. Include toilet partitions, handicapped accessible/ regular toilet fixtures/accessories/drinking fountains, and other provisions for handicapped.
5) Area Tabulation Diagram with gross SF shown for each type of area such as interior space (100% factor), covered walkways (50% factor), etc., per Navy or Air Force criteria.

b. **Roof Plan** (may be drawn at smaller scale) showing slopes, internal drains or gutters, crickets, skylights, pipe penetrations, expansion joints, and roof-mounted (mech/elec/etc.) equipment.

c. **Building Elevations** (normally at same scale as floor plan) showing all sides with pertinent features noted. See Architectural Elevation requirements in SCHEMATIC SUBMITTAL, Paragraph 2.1.2.b.

d. **Exterior Wall Sections** from foundation to roof membrane/parapet top for each type of exterior wall system. Show and label each material. Include "R-values" for wall and roof insulation.

e. **Typical Interior Partition Sections** showing fire and acoustical ratings. Coordinate with floor plans.

f. **Details** showing sufficient information to permit development of a reliable cost estimate. Include detail sections of typical roof at eaves or parapet conditions at 3" = 1'-0" scale.

g. **Door, Window, and Louver Schedules** - see paragraph 2.4.1.f.1), 2), and 3).

**h. Interior Finish, Color, and Signage Schedules** – see para. 2.4.1.f. 4) and 5).

**i. 35% Generic Furniture Footprint** drawn to the facility design scale is necessary to ensure that each space has been sized and configured appropriately. It shall include the SID systems furniture as well as the CID furniture. The CID furniture should be clearly distinguished by lighter screening or by graphic difference. This footprint is general in scope and is developed to aid in the facility design space allocations and arrangements. This generic footprint may or may not be used in the development of either the SID or CID Furniture and Furnishings Designs.

**2.3 INTERIM SUBMITTAL:** Interim submittals will sometimes be required by the Statement of Work (SOW), which will indicate the required completion percentage (e.g. 60% interim submittal). Specific submittal items will be identified in the SOW, however, the primary components will normally be the drawings and specifications. Drawings shall include all requirements of the 35% submittal plus additional detail to bring them to the specified completion percentage.

**2.4 100% SUBMITTAL:**

**2.4.1 Drawings:**

**a. Architectural Plans:**

1) *Floor Plans* showing:
   - **a)** Complete dimensions.
   - **b)** Spaces labeled with doors and windows numbered and door swings indicated.
   - **c)** Enlarged plans/elevations/sections and details cross referenced per MIL-HDBK-1006/1 Reference Symbol guidance.
   - **d)** Wall and partition thickness, secure area partition type, partitions that extend to overhead structure, fire and acoustical rated partitions (show rating). Reference symbols for each related section/detail.
   - **e)** Water coolers, janitor sinks, floor drains, fire extinguisher cabinets, access ladders and hatches, "walk-off" mats in exterior entrances, public phones, signage directories, and built-in shelving and equipment.
   - **f)** Wall and floor expansion/crack control joints.
   - **g)** Boundaries of floor finish material changes and floor level transitions.
   - **h)** Ramps, steps, and stairs.
   - **i)** Gross SF Area Tabulation Table and Diagram (locate near title block for each floor plan sheet and show note "NOT TO BE USED FOR BIDDING PURPOSES").
   - **j)** Necessary notes and schedules (use Key Notes for labels where practical).
   - **k)** Key Plans when an entire floor is not shown on a single sheet. Exterior Elevation reference symbols may be shown on Key Plan.

2) *Reflected Ceiling Plans* at same scale as floor plans showing:
   - **a)** All ceiling types (identified by note or legend) and acoustical ceiling tile grid(s).
   - **b)** Junctions of different ceiling finishes and ceiling level changes.

c) All partitions with fire walls and security/acoustical partitions which extend to structure above noted.
d) HVAC diffusers and returns.
e) Light fixtures.
f) Access Panels.
g) Ceiling mounted signage.
h) All required notes.

3) ***Roof Plans*** showing:
a) Roof layout with all pertinent dimensions.
b) Parapet walls, expansion joints, crickets, overflow scuppers, roof drains, gutters, and downspouts.
c) Direction of roof slope and amount of slope (minimum 1/2" per foot desired for USAF projects and required for USN projects – 1/4" per foot absolute minimum for reroofing). All valleys shall have positive slope.
d) All roof mounted equipment (coordinated with structural, mechanical, and electrical drawings). Mount air terminals (lighting rods) on parapet terminals.
e) All roof penetrations. vents, exhausts, skylights, monitors, and access hatches.
f) Reference symbols for wall sections, building sections, and details.
g) All necessary notes.

4) ***Enlarged Floor Plans*** showing:
a) Enlarged toilet plans at 1/2" = 1'-0" with toilet fixtures (handicapped accessible and regular types) and toilet accessories labeled and special handicapped access clearances indicated.
b) Kitchen layout with dimensions and equipment.
c) Stairs with runs and widths, landings, and railings dimensioned.
d) All necessary notes.

b. **Architectural Elevations** showing:
1) All sides of building with vertical dimensions and floor level elevations.
2) All finish materials and special requirements labeled.
3) Expansion and crack control joints.
4) Exterior doors.
5) Windows with operating sash indicated.
6) Exhaust fans, louvers, and grills.
7) Gutters, downspouts, splash blocks, and overflow scuppers.
8) Roof mounted equipment, exhaust stacks, and antennas.
9) Reference symbols for section and detail cuts.
10) All necessary notes.

c. **Building Sections** (same scale as Architectural Floor Plans, when practical) showing:
1) Floor, wall, partition, ceiling, and roof information for a minimum of one transverse and one cross section through entire building.
2) Reference symbols for section and detail cuts.
3) Doors, windows, finish materials, expansion joints, casework, toilet partitions, ladders, and signage.
4) Lighting, HVAC registers and returns, built-in equipment

d. **Interior Elevations/Sections** showing:
1) Toilets with fixtures, vanities, partitions, finishes, and accessories with labels and reference symbols.
2) Typical dormitory room with lighting, wall HVAC registers and returns, built-in furnishings, doors, windows, and outline of equipment (such as refrigerators) and furniture (such as beds, wardrobes, etc.) which are "not-in-contract". This is necessary for coordination and conflict prevention.
3) Kitchen/food preparation area with equipment outlined, electrical outlets and switches at proper heights, fire extinguishers, alarm bells/horns, and HVAC equipment and registers/ returns.
4) Janitor closets with shelving, wall hooks, and built-in equipment.
5) Stairs with dimensioned railings, treads, risers, nosings, and framing.

e. **Wall Sections, Sections, and Details** showing:
1) All sections and details (including flashing, drip moldings, weepholes, vents, etc.) necessary for construction.
2) Sections at minimum scale of 3/4" = 1'-0".
3) Isometric details for each roof flashing condition at minimum scale of 3" = 1'-0" and with ***all*** applicable notes.
4) Isometric detail of scuppers showing all flanges.
5) Joint covers for metal coping covers and gravel stops.
6) Roof crickets.
7) Wall and roof insulation with "R-values".
8) Door and window frame "head, jamb, and sill" details. Also astragals, weatherstripping, thresholds, floor level changes (such as at entrances), and physical security features.
9) Toilet partition, shower pan, floor/roof/ balcony drains, and waterproofing details.
10) Expansion joints, crack control joints for stucco/brick/cmu/concrete/ceramic tile/plaster, and joints between different finish materials.
11) Stair/balcony railings and mounting brackets, wall-mounted doorstop bracing, vanity bracing, locker/ weapons rack mounts, curtain wall/ large window protective railings, and partition corner/corridor wall bumpers.
12) Signage construction and method of mounting.
13) Necessary notes.
14) Titles referenced by Reference Symbol convention to Plans, Elevations, and Building Sections.

f. **Schedules** showing:
1) Doors and frames with fire and acoustical rating, physical security feature notes, and detail reference numbers.
2) Windows with frame material, glazing type, fire and acoustical rating, physical security feature notes, and detail reference numbers.
3) Louvers with frame, vane operation, fire rating, physical security feature notes, and detail reference numbers.
4) Interior finish materials for floor, base, walls, wainscot and ceiling with ceiling height. Also include

built-in cabinet finishes, window blinds, toilet partitions, bulletin boards and any other visible item attached to the building interior. Finishes for Systems Furniture shall be included. Also include exterior finish materials and color.

5) Signage with frame, mounting, letter style and height, finish, color, text, and location information.
6) Equipment.

g. **Systems furniture** shall be shown by:
1) SID Composite Furniture and Furnishings Plan (each "Typical Workstation" coded).
2) SID Systems Furniture Panel Plan (each panel distinguished by type and size).
3) SID Systems Furniture "Typical" Plans (group or workstation drawn to scale with each part listed by model number. To include elevation/isometric drawing of each).
4) SID System Furniture Electrical Plans (to coordinate with facility electrical power plan and to include voice/data when required).
5) SID Systems Furniture Cost Estimate.

h. **Other drawings as necessary.**

**2.4.2 Other 100% Submittal Items:** Calculations, Handicap Checklist, and Equipment Lists.

**2.4.3 Comprehensive Interior Design (CID) Concept Brochure:** When CID is included in the SOW, submit according to Section 11, Part E, Paragraph 1.

**2.5 FINAL SUBMISSION:**

**2.5.1 The final submittal** shall incorporate the corrections and comments noted on the 100% submittal.

**2.5.2 Comprehensive Interior Design (CID) Pre-Final Brochure:** When CID is included in the SOW, submit according to Section 11, Part E. The **CID Final Brochure** will be submitted as scheduled by the Southern Division Project Interior Designer.

# SECTION 14

# STRUCTURAL SUBMITTAL REQUIREMENTS

**1. DESIGN GUIDANCE:** Follow the most updated version of published criteria below, using generally accepted methods of analysis and design. Document methods and procedures so that calculations clearly support the design. Where Navy criteria does not apply, use generally accepted industry practice, stating the rationale for its use. Where you are in doubt about criteria, methods, procedures or structural requirements call Code 072 for assistance. Prior to beginning work, read SODIV-TG-1002, "Technical Guidance for Structural Engineering", for specific technical requirements.

**2. SUBMITTAL REQUIREMENTS:**

**2.1 SCHEMATIC SUBMITTAL:**

**2.1.1 Basis Of Design:** The Basis of Design shall justify the foundation and structural systems to be used. A brief synopsis shall be included to identify the logical alternatives for structural consideration and to discuss the rationale used to determine the best foundation and structural systems. Careful attention shall be given to all factors such as criteria, cost, local conditions, construction schedule and methods, availability of materials, etc. Discuss physical security requirements, considerations and features and how they will be incorporated into the design if applicable. A brief description of the foundation and structural systems to be used shall be provided and, as a minimum, shall include the following:

**2.1.1.1 The description of the foundation** shall include the subsurface conditions, the method of analysis and design, and the allowable capacity and time/settlement curves for any differential/uniform settlement expected.

**2.1.1.2 The description of the structural system** shall include the type of construction, method of analysis and design, all significant design criteria and loads, and all special features to be included on the drawings.

**2.1.2 Drawings:** No structural drawings are required for the schematic submittal.

**2.1.3 Calculations:** No structural calculations are required for the schematic submittal.

**2.1.4 Economic Analysis:** An economic analysis for proposed alternative structural systems shall be provided at the schematic submittal and will usually be based on initial capital costs. Compare alternatives for foundations, floor systems, framing systems, and other major structural components.

**2.2 35% SUBMITTAL:**

**2.2.1 Basis of Design:** See paragraph 2.1.1.

**2.2.2 Drawings:** The 35% drawings shall include the following:

**2.2.2.1 Foundation plan** at the same scale as the architectural plans to show the general

sizes, location and arrangement of all significant features of the foundation system. Include the layout of all slabs, footings, piers, grade beams, piles, caissons, pile/caisson caps, trenches, pits, openings, depressed and thickened slabs, etc. showing all dimensions and elevations necessary for construction. All dimensions shall be referenced to a column-line grid system oriented about the axes, usually length and width, of the structure and along the center-lines of the major support columns and walls. Elevations may be given using any datum consistent throughout the structural drawings so long as the chosen datum is referenced to the true elevation. Special construction features, sequencing and site conditions such as de-watering, excavation bracing, underpinning, expansive soils, existing structures, etc. which have a significant impact on project cost shall be shown.

2.2.2.2 **Framing plans**, consistent with the foundation plan, to show general sizes, location and arrangement of all significant features of the horizontal framing system. Include the layout of all beams, joists, stringers, purlins, slabs, decks, plates, grating, etc. showing all dimensions and elevations necessary for construction. The elevations shall be referenced to some finished datum such as top of steel, slab, finished floor, concrete, joist, deck, etc. Special construction features, sequencing and site conditions which have a significant impact on project cost shall be shown.

2.2.2.3 **Elevations**, if necessary, consistent with the foundation plans to show general sizes, location and arrangement of all significant features of the vertical framing system. Include the layout of all columns, walls, beams, girts, stringers, bracing, etc. showing all dimensions and elevations necessary for construction. Reference elevations shall be consistent with the framing plans.

2.2.2.4 **Sections and Details** shall provide sufficient information to identify the general types of material and methods of construction required such that a reliable cost estimate can be developed for the structure. All parts or pieces shall be identified and shown in sufficient detail to provide an accurate representation of their size, connections and spatial relationships to other structural/architectural features. All dimension and elevation references shall be consistent with previous plans.

2.2.3 **Calculations:** The analysis and design of all structures and components shall be done in accordance with the design criteria applicable to the project. The calculations shall be legible, orderly and easily understandable. At the 35% submittal, the calculations should be complete for all major cost contributing components and include the following:

2.2.3.1 **Cover Sheet** shall include the project title, location, construction contract number and the names of the persons originating and checking the calculations. The person checking the calculations shall be a registered engineer practicing structural engineering and shall be a different engineer from the originator.

2.2.3.2 **Index** shall include a table of contents showing the subject and page number for each topic (introduction, design criteria, calculations) and subtopic (loads, materials, references, wind analysis, footing design, wall design, column design, etc.) addressed in the calculations. Each page, consecutively numbered, shall identify the total number of pages contained in the calculations (sheet ___ of ___), the revision number, date, project name,

project location and be initialed by the originator and the checker.

**2.2.3.3 Introduction** shall include a brief statement describing the structural system, significant design parameters and any restrictions that may affect the project design.

**2.2.3.4 Design Criteria** shall be provided and shall include the following:

**a. Loads** - Include all loadings, forces, temperature changes, induced settlements, etc that may affect the design of the structure. The list shall include the application/location, magnitude and units of measure for each load.

**b. Restrictions** - Include all limiting factors such as deflection limits, (horizontal and vertical), height restrictions, special tolerances for installing or operating equipment, or other special restrictions that may affect the design of the structure.

**c. Materials** - Include all material to be used and their allowable stress limits or yield points. The list shall include material type and grade, class, allowable stress, yield and appropriate units of measure.

**d. References** - Include all criteria, accepted standards, manuals, codes, texts, papers, or other design information used in the analysis and design that is accepted in a public domain. All references shall be appropriately identified. Abbreviations such as AISC, ASTM, ACI, etc. are acceptable. Also, include computer program, (source and name), along with the version and date used for analysis and design. Where criteria is provided by a facility user, document the originator in the calculations.

**2.2.3.5 Calculations** shall include the analysis and design of all (major cost contributing elements) beams, columns, walls, foundations, slabs, bracing, diaphragms, equipment supports, etc. and the connections to each other to provide a safe, stable, efficient and cost effective structural system. An adequate number of sketches with sufficient detail to make the designer's intentions clear, concise and easily understandable shall be provided. All assumptions and references to codes, standards, criteria, drawings and computer outputs shall be noted as necessary.

**2.2.3.6 Computer Outputs** shall be identified similar to the calculations and may be referenced as an appendix or attachment. Document the program name, source and version. All models used for computer input shall be provided. The models shall show nodes/joint, element/members, materials/properties, and all loadings, temperature changes, induced settlements/deflections, etc., and a list of their combinations considered in the analysis. Computer results shall include an output summary listing for maximum/minimum stresses/forces and deflections for each element and the structure reactions for each loading combination.

**2.3 INTERIM SUBMITTAL:** Interim submittals will sometimes be required by the Statement of Work (SOW), which will indicate the required completion percentage (e.g. 60% interim submittal). Specific submittal items will be identified in the SOW, however, the primary components will normally be the drawings and specifications. Drawings shall include all requirements of the 35% submittal plus additonal detail to bring them to the specified completion percentage. See the Section 11 for interim specification requirements.

## 2.4 100% SUBMITTAL:

**2.4.1 Drawings:** The 100% plans, detail sheets and other required drawings shall be completed in accordance with the following minimum requirements.

**2.4.1.1 General Conditions:**

a. Design criteria for loads, materials, and references,
b. General notes for the project,
c. Material notes such as structural steel, concrete, masonry, etc.,
d. Bid information such as pile/caisson lengths,
e. Special load test requirements,
f. Other information/instructions to contractor,
g. Abbreviations and symbols used for structural drawings.

**2.4.1.2 Foundation Plan:**

a. Layout of foundation support systems showing all dimensions and elevations necessary for construction,
b. Size or schedule references for all foundation features such as footings, grade beams, piles, caissons, pile/caisson caps, etc.,
c. Control/expansion joints in floor slab and foundation walls,
d. Trenches, pits, openings, depressed/ thickened slabs,
e. Foundation alternatives,
f. Test pile/caisson location,
g. Special construction features - de-watering, excavation, bracing, under-pinning, etc.,
h. Special construction sequencing,
i. Existing site conditions/features,
j. North arrow (orient plans so that north is to the top or left of the sheet),
k. Graphic scales.

**2.4.1.3 Framing Plans:**

a. Layout of horizontal framing elements showing all dimensions, orientation and elevations necessary for construction,
b. Size or schedule references for all horizontal framing elements such as beams, joists, slabs, decks, grating, etc.,
c. Slab control/expansion joints,
d. Openings requiring special framing or reinforcing,
e. Location of splices, brackets, penetrations, sleeves, embedments, bracing, weldments, etc.,
f. Special temporary bracing, shoring or forming,
g. Other special requirements, such as equipment clearances, travel distances for hoists and cranes, etc.,
h. North arrow (orient plans so that north is to the top or left of the sheet),
i. Graphic scales.

**2.4.1.4 Elevations:**

a. Layout of vertical framing elements showing all dimensions, orientations and elevations necessary for construction,
b. Size or schedule references for all vertical framing elements such as column, walls, piers, beams, bracing, etc.,
c. Wall control/expansion joints,
d. Openings requiring special framing or reinforcing
e. Location of splices, brackets, penetrations, sleeves, embedments, bracing, weldments, etc.,
f. Special temporary bracing, shoring or forming,
g. Other special requirements such as equipment, clearances, travel distances for hoists and cranes, etc.,
h. Graphic scales.

**2.4.1.5 Sections and Details:**

a. Layout of all sections and details showing all parts, shapes, sizes, materials, dimensions, elevations, arrangement and orientation necessary for construction,
b. Standard connections or schedule references for forces, fasteners, welds, plates, clips, ties stirrups, pins, etc.,
c. All special connections completely detailed to a point where no further engineering is necessary,
d. Concrete/masonry wall reinforcement details showing size, clearances, placement, shape, etc.,
e. Lintel details or schedule references for loads, sizes, materials, arrangement, etc.,
f. Anchor bolts, base plates, bearing plates, or schedule reference for materials, size, thickness, welds, embedments, threaded parts, projections, etc.,
g. Diaphragm deck type, gauge, yield strength, minimum number of spans or length, fastener type and pattern,
h. Applicable special notes and instructions,
i. Graphic scales.

**2.4.1.6 Schedules:**

a. Provide all information/instructions for fabrications, forming, placement, erection, installation, etc. necessary for construction.
b. Schedules for beams, lintels, joist, trusses, frames, piles, caissons, footings, pile/caisson caps, grade beams, slabs, etc.
c. Calculated column loads, beam shear/reaction and moments, footing pressures, pile/caisson capacities/loads (vertical and horizontal) etc.
d. Special instructions, materials, process, etc.

**2.4.1.7 Other Drawings:**

a. Layout of structural systems for special fabrications and construction such as space trusses/frames, long span trusses, vierendeel trusses, shells, towers, fabric structures, etc
b. Temporary structures to be dismantled/relocated

**2.4.2 Calculations:** Calculations shall include the analysis and design of all (major cost contributing elements) beams, columns, walls, foundations, slabs, bracing, diaphragms, equipment supports, etc. and the connections to each other to provide a safe, stable, efficient and cost effective structural system. An adequate number of sketches with sufficient detail to make the designers intentions clear, concise and easily understandable shall be provided. All assumptions and references to codes, standards, criteria, drawings and computer outputs shall be noted as necessary.

**2.5 FINAL SUBMITTAL:** The final submittal shall incorporate the corrections and comments noted on the 100% submittal.

# SECTION 15

# MECHANICAL SUBMITTAL REQUIREMENTS

1. GENERAL DESIGN GUIDANCE: Mechanical Systems shall be designed in accordance with criteria outlined in MIL-HDBK-1190, MIL-HDBK-1003/3, SODIV-TG-1003, Air Force Engineering Technical Letters, other applicable DM's, Definitive Designs and criteria as appropriate. Design of the HVAC system for projects that require an energy analysis shall not proceed until the alternative selected has been approved by the Code 0733 engineer assigned to the IDR.

2. SUBMITTAL REQUIREMENTS:

2.1 SCHEMATIC SUBMITTAL: The schematic submittal shall consist of the following:

2.1.1 Basis of Design: The Basis of Design shall be a narrative presentation of facts which will clearly indicate the selected mechanical/plumbing systems and/or the proposed alternative systems to be analyzed. A discussion and description shall be provided for the following:

2.1.1.1 Plumbing Systems:

a. Number and types of plumbing fixtures
b. Selection of piping materials
c. Estimated maximum and minimum water pressure

2.1.1.2 Heating, Ventilation, and Air Conditioning:

a. Estimated heating and cooling loads
b. Documentation of unusual temperature and humidity requirements
c. Ventilation rates with a statement regarding compliance with ASHRAE Standard 62
d. Discussion of areas to be conditioned and equipment locations/space requirements
e. Documentation of customer's preference for the HVAC control system
f. Information on available energy sources/utilities, such as natural gas, steam from central heating plant, chilled water from central chiller plant, etc.
g. For projects requiring an energy analysis, list alternative systems to be analyzed with a brief statement as to why each system is justified for further analysis. Include Exhibit 7-1 from Section 7 of SODIV-TG-1003.
h. Any other HVAC design features such as industrial ventilation requirements, provisions for future heating/cooling plant additions, etc.

2.1.1.3 Refrigeration (Cold Storage): Describe refrigeration/cold storage requirements, proposed equipment, types of refrigerants, etc.

2.1.1.4 Bulk and Ready Issue Petroleum Fuel Distribution and Storage: Discuss storage, distribution, leak detection, containment, overfill protection etc.

2.1.1.5 Miscellaneous Mechanical Systems: Describe any special mechanical systems such

as compressed air, hydraulic, nitrogen, etc. Explain the source of medium.

**2.1.2 Calculations:** Preliminary HVAC calculations shall be in accordance with ASHRAE guidance. Plumbing calculations shall include cold water demand and hot water demand.

**2.1.3 Drawings:** Sufficient mechanical drawings shall be included to indicate major equipment for approved mechanical and plumbing systems.

**2.2 35% MECHANICAL SUBMITTAL:** The 35% mechanical submittal shall include the following:

**2.2.1 Basis of Design:** The Basis of Design shall be a narrative presentation of facts which will clearly describe the selected mechanical and domestic water heating systems. Justification for all systems and major equipment selections shall be substantiated by an analysis of alternatives examined and a brief statement for the various selections. A discussion and description shall be provided for the following:

**2.2.1.1 Plumbing Systems:**

a. Number and types of plumbing fixtures
b. Available water pressure
c. Water heating method and fuel

**2.2.1.2 Heating, Ventilation, and Air Conditioning:**

a. Description of the selected HVAC systems and controls, including energy sources. Include Exhibits 7-1 and 7-2 from Section 7 of SODIV-TG-1003.
b. Calculated heating and cooling loads
c. Documentation of unusual temperature and humidity requirements
d. Ventilation rates with a statement regarding compliance with ASHRAE Standard 62
e. Discuss areas to be conditioned and equipment locations
f. Any other HVAC design features such as industrial ventilation requirements, provisions for future heating/cooling plant additions, etc.

**2.2.1.3 Refrigeration (Cold Storage):** Describe refrigeration/cold storage requirements, proposed equipment, types of refrigerants, etc.

**2.2.1.4 Bulk and Retail Petroleum Fuel Distribution and Storage:** Discuss storage, distribution, leak detection, containment, overfill protection, etc.

**2.2.1.5 Miscellaneous Mechanical Systems:** Describe any special mechanical systems such as compressed air, hydraulic, nitrogen, etc. Explain the source of medium.

**2.2.2 Calculations:** Air conditioning and heating calculations shall be in accordance with the latest edition of ASHRAE guidance. At a minimum, calculations shall include:

a. Source documentation for all design values used.
b. Tabulation of inside and outside design temperatures and relative humidities. Include tolerance values for inside conditions.
c. Building section sketches (i.e. roof, ceiling, and walls) showing U-value calculations

d. HVAC calculations including tabulation of process/electronic loads
e. Psychometric plots showing all state points for each air handling unit.
f. Plumbing calculations including water heating and storage requirements.
g. Compressed air and industrial gases including demand tabulation.
h. Pump head calculations. Rule of thumb estimates for fitting losses are not acceptable.
i. Manufacturer's catalogue cuts documenting equipment selection points.

2.2.3 Drawings: Mechanical floor plans shall be not less than 1/8" = 1'-0". Floor plan scales of 1/4" = 1'0" should be considered when the complexity of the work results in overcrowding of the drawings such as in mechanical room layout and in the design of hospitals. The drawings shall be prepared to include the following:

a. HVAC Floor Plans showing the location of major equipment and ductwork. All ductwork shall be shown double line, to scale.
b. Plumbing Floor Plans showing potable water, DWV, compressed air, etc.
c. Basic HVAC system and riser diagrams.
d. HVAC and plumbing equipment schedules, not necessarily complete but at least showing sizes of major equipment.
e. HVAC Design Conditions Schedule including tolerances of inside temperatures and relative humidities.
f. Basic HVAC control diagrams and written sequence of control.
g. Site layout showing points of utility connections, including sanitary sewer invert elevations at the five foot line. If all of the utility connections are shown on the civil drawings, a Mechanical Site Layout will not be required; however, indicate where all utility lines are continued.
h. Exterior piping including chilled/hot water, condenser water, plumbing/ sanitary, steam, fuel, compressed air and gas piping, etc.
i. Equipment locations.
j. Fuel storage general arrangement.

2.3 INTERIM SUBMITTAL: Interim submittals will sometimes be required by the Statement of Work (SOW), which will indicate the required completion percentage (e.g., 60% interim submittal.) Specific submittal items will be identified in the SOW; however, the primary components will normally be drawings and specifications. Drawings shall include all requirements of the 35% submittal plus additional detail to bring them to the specified completion percentage. See Section 11 for interim specification requirements. Include a copy of comments from the previous review marked to indicate the action taken for each comment.

2.4 100% MECHANICAL SUBMITTAL: The 100% Mechanical Submittal shall include the following:

2.4.1 Drawings: The drawings shall be prepared ready for bidding to include the following:

a. Plumbing Plans
b. HVAC Plans
c. Roof Plans
d. Large Scale Plans
e. Elevations
f. Sections
g. Details

h. Schedules
i. Control Diagrams
j. Sequence of control
k. Piping Schematics
l. Riser Diagrams
m. Legends
n. Plumbing Fixture Schedules
o. Notes
p. Design Conditions
q. Other Details as required

2.4.2 **Calculations:** Corrected to include all previous submittal review comments or a clear statement why the review comment was not complied with.

2.4.3 **Copy of Previous Review Comments:** A copy of the previous submittal review comments marked to indicate the action taken for each comment.

2.5 **FINAL SUBMITTAL:** The final submittal shall incorporate the corrections and comments noted on the 100% submittal.

# SECTION 16

# FIRE PROTECTION SUBMITTAL REQUIREMENTS

## 1. DESIGN GUIDANCE:

**1.1 GENERAL:** Fire Protection can be basically defined as the protection of life and property against the threat of fire or other related hazards. The designer must know the everyday activity of the occupants and how to evacuate and isolate them from a fire in another space. Decisions must be made early in the project to provide the maximum degree of safety to the occupants and to the protection of property to obtain an economical design. Strict integration with all engineering disciplines must be established. It is essential that these objectives are identified and design decisions made as early as possible to provide an economical and effective design. Prior to beginning work, read SODIV-TG-1008, "Technical Guidance for Fire Protection", for specific technical requirements.

**1.2 DESIGN CRITERIA:** Follow SODIV-TG-1008, "Technical Guidance for Fire Protection". Use other criteria as required by facility type (refer to SOUTHNAVFAC-ENGCOM 0001, Index of Criteria") and MIL-HDBK-1008B "Fire Protection For Facilities; Engineering, Design, and Construction".

## 2. SUBMITTAL REQUIREMENTS:

### 2.1 SCHEMATIC SUBMITTAL:

**2.1.1 Basis of Design:** Include the type of occupancy per Life Safety Code, NFPA-101, and if sprinkler protection will be provided.

**2.1.2 Drawings:** Show the exit arrangement that will comply with the Life Safety Code, NFPA-101.

**2.1.3 Water Supply:** The available water supply must be established as early in the project as possible. Current information must be obtained from the base Fire Department or flow tests must be conducted. Information shall include the static pressure, and flow at the associated residual pressure. This information is required regardless of whether or not the project includes sprinkler protection. MIL-HDBK-1008B identifies minimum flow requirements for both sprinklered and unsprinklered facilities.

### 2.2 35% SUBMITTALS:

**2.2.1 Drawings:** Fire protection criteria is more frequently shown on the drawings of other disciplines except for more complex fire protection systems.

**a. Civil Drawings:** These drawings should show all existing and new water lines. Particular attention shall be made to the location of existing and proposed fire hydrants to ensure compliance with Mil-Handbook-1008-B. Point(s) of connection to sprinkler system supply lines shall be shown with required valves.

**b. Architectural Drawings:** Shown on the architectural drawings should be a general building layout with regard to life safety as defined by the Life Safety Code, NFPA 101,

and fire area separation as required by the UBC. Included in this design should be the location of exits, fire walls, corridors, stairwells, and any other required fire rated enclosure. The designer should anticipate the occupants range of activities during a 24 hour day, 7 day week period to determine the required life safety needs of the occupant. It is critical that all life safety questions be answered early in the project as the floor plan is directly involved.

c. **Mechanical Drawings**: These drawings shall include the locations of any required fire or smoke dampers. The sprinkler riser shall be located on the plans but the layout of the overhead sprinkler piping is not shown. Any areas to be protected by sprinklers, CO2 or other automatic extinguishing system shall be clearly identified.

d. **Electrical Drawings**:

1) The electrical site plan should show the location of new exterior fire alarm reporting stations and the point of connection of new equipment to the base fire alarm system.

2) The electrical floor plan should show all fire alarm and detection devices. If an electrically controlled suppression system is utilized, a separate floor plans showing these devices shall be utilized. Included shall be all manual pull stations, automatic detectors, control panels, and audible alarms. The location of exit lights and emergency lights shall be shown.

3) A fire alarm riser diagram shall be shown which includes all fire alarm equipment and interconnections. Indicate the source of power supply and connection to base fire alarm system.

4) Fire suppression system riser diagram shall be shown which includes all devices.

2.2.2 **Basis of Design:** Prior to the design of any structure specific questions regarding fire protection must be raised in order to address the occupants particular needs and acceptable level of fire risk as avenues of egress and fire rated separations are all basic to the floor plan. It is essential that any answers about fire protection be reached as early as possible. Addressed items should include:

a. **Type of Construction**: Clearly identify and describe the type of construction to be used as defined by the Uniform Building Code detailing the maximum fire area and separation of structures. Occupant loading and exiting calculations conforming to the NFPA 101 (Life Safety Code) shall be submitted.

b. **Fire Extinguishing System**: Identify the fire extinguishing system to be provided detailing design parameters and area to be protected listing criteria references. The specific hazard to be protected (i.e. light ordinary, extra, etc.) must be clearly outlined in addition to the density provided over the desired operating area. Calculations showing that water flow is adequate to meet sprinkler demands are required which necessitates a field survey by the A/E to determine actual water supply data. Design shall be in accordance with Mil-Handbook 1008-B and NFPA criteria as appropriate.

c. **Fire Alarm and Detection Systems**: Clearly describe fire alarm and/or fire detection system to be provided. List all actuating devices and functions the system will perform including a sequence of operations. Any existing fire alarm equipment must be identified with special

emphasis on the base wide fire reporting system.

2.2.3 Calculations: Provide water supply data and calculations verifying the availability of water for sprinkler systems. In addition occupancy calculations are required in order to conform with NFPA 101, Life Safety Code.

2.3 INTERIM SUBMITTAL: Interim submittals will sometimes be required by the Statement of Work(SOW), which will indicate the required completion percentage (e.g. 60% interim submittal). Specific submittal items will be identified in the SOW, however, the primary components will normally be the drawings and specifications. Drawings shall include all requirements of the 35% submittal plus additional detail to bring them to the specified completion percentage. See the Section 11 for interim specification requirements.

2.4 100% SUBMITTAL:

2.4.1 Drawings:

a. Civil Drawings (normally shown on civil utility sheets which show water distribution):

1) Show all new and existing water piping including sizes.
2) Show new and existing valve and fire hydrant location ensuring conformance with MIL-HDBK-1008-B.
3) New valve and fire hydrants shall require an installation detail complete with guard posts.
4) The water line supplying the sprinkler riser shall be shown with the connection into the building.
5) The location of any required fire pump or water storage tank shall be shown.

b. Architectural:

1) The location and rating of smoke and fire walls must be clearly shown and detailed. Clearly indicate the specific hourly fire rating.
2) A detail of the fire and smoke wall construction must be provided along with the particular Underwriters' Laboratories listing obtained from the latest edition of the U.L. Fire Resistance Directory.
3) Details of any fire wall penetration shall be provided for each type of wall construction as outlined in the U.L. Building Materials Directory.
4) Detail type and size of fire extinguisher to be provided. Base Fire Department should be contacted for further information.
5) The class and hour rating of fire doors shall be provided on the door schedule.

c. Mechanical Drawings:

1) The location of sprinkler riser must be shown on the plumbing floor plan with a detail of the sprinkler riser also provided. (Note: Sprinkler piping layout is not shown)
2) Any $CO_2$ banks shall be shown with the areas protected detailed. A riser diagram is also required.
3) The location of smoke and fire dampers with a detail shall be shown.
4) The physical layout of the fire pump and associated piping shall be provided.
5) Any required duct mounted smoke detectors must be shown on the HVAC Drawings.
6) Fire stopping detail for penetrations of fire walls with reference.

d. **Electrical Drawings:**

1) The existing base wide fire alarm system must be determined. If an exterior master box is required, the location must be shown. A detail of the master box pedestal must also be provided.
2) All fire alarm and suppression devices including control panel, manual pull stations, automatic detectors, extinguishing system pressure switches, and audible devices shall be located on an electrical floor plan.
3) A fire alarm riser and suppression system diagram showing the interconnection of all fire alarm equipment is required. Ensure the power supply and point of connection to base wide fire alarm is shown. (Note: Source of power to fire alarm control panel shall be taken prior to the main power disconnect.)
4) Emergency lighting locations shall be provided on the electrical floor plan with a detail of each type of emergency light fixture provided.
5) The fire alarm zone, suppression, and annunciation schedule shall be detailed. Complex fire alarm systems such as jet engine test cells and hush houses, Aircraft Hangars, etc. shall require a chart detailing a sequence of operations.
6) Fire stop details of electrical penetrations of fire wall with a note referring to the appropriate architectural sheet for fire wall location.

**2.5 FINAL SUBMITTAL:** The final submittal shall incorporate the corrections and comments noted on the 100% submittal and be ready for signature by the SOUTHNAVFACENGCOM Fire Protection Engineer.

# SECTION 17

# ELECTRICAL SUBMITTAL REQUIREMENTS

## 1. DESIGN GUIDANCE:

**1.1 GENERAL:** Designs utilizing sound engineering judgement supported by detailed calculations are required. All engineering decisions must be documented.

**1.2 CRITERIA:** Follow SODIV-TG-1004, "Technical Guidance for Electrical Design" (formerly SOUTHDIV 16000). Use other criteria as required by facility type (refer to SOUTHNAVFACENGCOM 00001 "Index of Criteria").

## 2. SUBMITTAL REQUIREMENTS:

**2.1 SCHEMATIC SUBMITTAL:** The Schematic Submittal shall include the following:

a. Electrical Drawings
b. Basis of Design

### 2.1.1 Schematic Electrical Drawings:

**a. Existing Site and Demolition Plan:** This plan should include all existing site information such as buildings, pavements and utilities. All electrical demolition should be shown on this drawing and indicated by legend. Demolished features should not be shown on subsequent drawings.

**b. Site Plan:** This plan should show new and remaining aboveground and underground electrical equipment. When located in proximity to other utilities, all should be shown to avoid conflicts. Information on existing conditions should be complete and field checked.

**c. Single Line Diagram:** This plan should show the following:

1) Existing distribution to a point of connection.
2) Primary feeder to project.
3) Padmounted transformer or substation with primary and secondary switchgear.
4) Secondary feeders.

### 2.1.2 Schematic Basis of Design:

**a. Primary Distribution:**

1) Describe the primary source of power.
2) Where the source of power is located.
3) Statement relative to the adequacy of the primary supply at the point of take-off.
4) Electrical characteristics of power supply to station, or portion involved, including circuit interrupting and voltage regulation requirements.
5) Estimate of total connected load and resulting KVA demand load by applying proper demand (state operating assumptions) and diversity factors.
6) Basis for selection of secondary voltage.
7) Distribution, overhead or underground.
8) Type of conductors, such as copper or aluminum.

9) Type of conduit or duct if used.
10) A statement describing pertinent standards of design, such as voltage drop, physical characteristics of overhead or underground circuits, clearances, etc.

**b. Describe the Primary Service Transformation to Secondary Service:**

1) Primary and secondary voltage rating.
2) Describe the transformer or unit substation giving electrical characteristics.
3) Describe the proposed primary and secondary switchgear.
4) Describe the proposed primary and secondary protection devices.

**c. Describe the Electrical Systems** including the following:

1) Lighting systems
2) Power systems
3) Emergency lighting
4) Emergency power
5) Grounding system or systems
6) Telephone system
7) Other systems such as television, paging, call, etc.
8) Physical and electronic security features such as IDS, lighting access control, tempest, etc.

**d. A statement describing proposed pertinent standards of design**, such as voltage regulation, lighting intensities, and type of lighting fixtures.

**2.2 35% DESIGN SUBMITTAL:** The 35% Design Submission shall include the following:

a. Preliminary Drawings.

**b. Design Data (Basis of Design, Design Calculations and Economic Analysis, if required).**

**2.2.1 35% Drawings:**

**a. Existing Site and Demolition Plan:** This plan should be developed to approximately 50% completion. Interior demolition should be shown on separate plan.

**b. Site Plan:** This plan should be developed to approximately 50% completion. Information on existing conditions should be complete and field checked.

**c. Lighting Plan(s):** These plans should show a building's full floor plan (first, second, etc.) with the layout and type of fixtures to be used and the design footcandle levels for all types of lighting systems.

**d. Power Plan(s):** These plans should show a building's full floor plan (first, second, etc.) with the location of receptacles, panelboards, switchboards, motor control centers, transformers and any other major equipment throughout the inside and outside of the building or project.

**e. Single Line Diagram:** This drawing should be developed to approximately 50% completion showing all panels, switchboards, motor control centers, transformers and other major electrical loads such as M.G. sets, A/C chillers, etc.

**f. Additional Plans/Risers** (Show Location of Devices):

1) Telephone
2) IDS
3) Others as required

**2.2.2 35% Design Data:**

**2.2.2.1 35% Electrical Basis of Design:** See paragraph 2.1.2.1 for requirements.

**2.2.2.2 35% Design Calculations:** Refer to SODIV-TG-1004 for required calculations.

**2.3 INTERIM SUBMITTAL:** Interim submittals will sometimes be required by the Statement of Work (SOW), which will indicate the required completion percentage (e.g., 60% interim submittal.) Specific submittal items will be identified in the SOW; however, the primary components will normally be drawings and specifications. Drawings shall include all requirements of the 35% submittal plus additional detail to bring them to the specified completion percentage. See Section 11 for interim specification requirements.

**2.4 100% ELECTRICAL SUBMITTAL:** The 100% Electrical Submittal shall include the following:

a. 100% Drawings
b. Updated Basis of Design
c. 100% Design Calculations

**2.4.1 100% Drawings:** The 100% submission shall include all sheets indicated for the 35% submission plus all detail sheets necessary to fully present the scope of the electrical work required for the project.

**a. Existing Site and Demolition Plan:** This drawing shall include all existing site information such as buildings, pavements and utilities that affect or interface with the demolition of the electrical portions of the project. The specifications should indicate the disposition of demolished materials and equipment. The limits of demolition must be clearly defined, i.e, if a portion of overhead line is to be removed, provide a detail showing how the remaining portion is to be terminated.

**b. Site Plan and Details:** This drawing shall show all new and existing aboveground and underground features such as buildings, pavements and utilities that affect or interface with the electrical portions of the project. As a minimum the following information shall be shown:

1) Primary and secondary electrical lines
2) Fire alarm and communications lines
3) Transformer or substation (located by dimensions from the building or other prominent feature)
4) Streets, parking area and other flood lighting
5) All other exterior electrical equipment, such as M.G. sets, A/C units, etc.
6) In congested areas a profile of duct lines may be required.

**c. Lighting Plans and Details:** These drawings shall show the building's full floor plan (first, second, etc.) with the location and number of lighting fixtures, type and size of wiring serving these fixtures. Provide details of all lighting fixtures used (include mounting height and support details). Emergency, exit, and security lighting shall be included where required.

**d. Power Plans and Details:** These drawings shall show a building's full floor plan (first, second, etc.) as well as any large scale plans necessary to prevent overcrowding. The power plans should show the location of receptacles and electrical equipment and the type, size and location of wiring required throughout the facility.

**e. All of the following per SODIV-TG-1004:**

1) Power - Single Line Diagram
2) Communications Plan
3) Telephone Riser Diagram
4) Intercommunication Riser Diagram
5) Other Riser Diagrams for Television, Paging, IDS, etc.
6) Panel Schedules
7) Switchboards and Motor Control Center Schedules
8) Lighting Fixture Details

**2.4.2 100% Updated Basis of Design:** Provide revised or corrected Basis of Design or state if not changed.

**2.4.3 100% Calculations:** Provide required calculations per SODIV-TG-1004.

**2.4.4 Response to Previous 35% Review Comments:** A/E must always clarify major comments with a phone call to SOUTHNAVFACENGCOM reviewer, rather than wait until next submittal to respond.

**2.5 FINAL SUBMITTAL:** The Final Submission shall incorporate the corrections and clarifications noted on the previous 100% submittal.

# SECTION 18

# AIR FORCE REQUIREMENTS

## 1. GENERAL:

**1.1 TERMINOLOGY:** Due to differences in terminology between the Navy and Air Force, all references throughout the A/E Guide to the following terms should be changed as indicated:

a. Project Engineering and PE to Project Definition and PD
b. Schematic Design Submittal to PD Submittal (includes Preliminary PD Submittal, Final PD Submittal, and Corrected Final PD Submittal)
c. 100% Submittal to 90% Submittal
d. Public Works (PW) to Base Civil Engineer (BCE)
e. Major Claimant to Major Command

**1.2 SUBMITTAL FORMAT:** For those Navy Schematic Submittals which require 8-1/2" x 11" format, an acceptable alternative for comparable Air Force PD Submittals is 8-1/2" x 14" format.

## 2. ADDITIONS/CHANGES TO PREVIOUS SECTIONS OF THIS A/E GUIDE:

***SECTION 3 - DEFINITIONS AND ABBREVIATIONS:***

*Add* the following:

**BASE CIVIL ENGINEER (BCE):** The BCE is the design/engineering agent at the activity.

**PROJECT DEFINITION (PD) PHASE:** The preliminary design phase of a project that results in an approved schematic design. PD documentation is used as the basis of a request to Congress for authorization to construct a facility under the Military Construction Program.

***SECTION 5 - RESPONSIBILITIES OF THE A/E:***

*Add* the following ***supplemental information*** to the requirements of **Paragraph 2, "Scope Limitations"**, and **Paragraph 4, "Cost Limitations"**:

**COST AND SCOPE LIMITATIONS:** The A/E is responsible for developing project definition for a project that is completely functional, maintainable, operational, and within the cost and scope constraints for this project. If at any time the Architect-Engineer (A/E) determines that the estimated construction cost or scope of the project exceeds, or is likely to exceed, the estimated construction contract price, or scope set forth in this Statement of Work, the A/E shall report this fact in writing to the Contracting Officer and submit a control estimate and recommendations for reducing the project's cost and/or scope to within the established limits. Any proposed deviation from criteria must be approved prior to implementation.

*SECTION 8 - CRITERIA:*

*Add* the following:

**AIR FORCE CRITERIA:** The project design shall conform to the following Air Force criteria:

a. AFI 32-1024, Standard Facility Requirements
b. AFM 88-29, Engineering Weather Data
c. AFI 32-1051, Roof Systems Management
d. AFP 88-40, Sign Standards
e. Air Force Interior Design Presentation Format Manual
f. Activity requirements (as applicable)

Project design shall also conform with other criteria referenced in the above, such as related Air Force publications, OSHA Regulations, etc., and with other relevant Air Force design criteria (AFIs, AFRs, ETLs, AFPs and AFPMs, AFMs and AFJMANs, AFHs and AFJHs, MIL-HDBKs, etc.). These and other types of Air Force criteria are available on the CCB discs or from various Air Force internet websites, such as the homepages for the Air Force Directorate of Departmental Publishing @ http://afpubs.hq.af.mil, Air Force Civil Engineer Support Agency (afcee) @ http://www.afcesa.af.mil/default.html, and Air Force Center for Environmental Excellence (afcee) @ http://www.afcee.brooks.af.mil/afceefrm.htm. The Air Force Major Command and/or local activity will advise the Southdiv Project Manager (PM) regarding which, if any, Air Force criteria are applicable to the design of a particular project. The A/E should contact the PM for this information.

*SECTION 9 - DESIGN CONSIDERATIONS:*

*Replace* **Paragraph 7.3, "Distribution of Submittals"**, with the following:

**DISTRIBUTION OF SUBMITTALS:** The A/E shall make submission directly to all concerned and shall use overnight mailing for distribution of design submissions to review agencies. The A/E forwarding letter is to include the following statement: "Review comments should be forwarded through the appropriate chain of command to the Commanding Officer, Southern Division, Naval Facilities Engineering Command, 2155 Eagle Drive, P.O. Box 190010, North Charleston, SC 29419-9010 (Attn: Code 07[ ]). If there are no comments, then a letter so stating should be forwarded." Copies of these for-warding letters are to be provided to the PM.

*SECTION 10 - REQUIREMENTS AND OPTIONS:*

*Add* the following:

**REQUIREMENTS AND MANAGEMENT PLAN (RAMP):** The RAMP provides project planning information such as base architectural guidelines; base standards and regulations for fire protection, safety, security, communications, systems operability and maintain-ability, energy conservation, and other base/site specific requirements; a Base

Long Range Plan; etc. The RAMP is prepared at the project air base/major command level and will be provided to the A/E by the PM.

*Add* the following ***supplemental information*** to the requirements of **Paragraph G, "Site Adaptation"**:

**SITE ADAPTATION:** The A/E shall ensure compliance of the site adaptation with major command and base architectural guidelines. In the report which identifies design changes required to comply with criteria revisions that have occurred since the original design, the A/E shall include changes required as a result of Air Force criteria revisions.

*SECTION 11 - DELIVERABLES:*

*Replace* **Part R, "Not Used"**, with the following:

**PROJECT DEFINITION (PD) DOCUMENTATION:** The PD documentation is produced by the A/E as part of the PD process for Air Force projects. The PD documentation documents the project scope, budget, and design solution for approval by Congress and must be based upon a complete PD design analysis and developed design concepts. The main elements of the PD documentation are the DD Form 1391, budget estimate summary sheet, project sketches, basis of design, and Parametric Cost Estimate (PCE). The PCE shall include a Summary Sheet (indicating authorized scope, designed scope, authorized construction cost, designed construction cost, percentage over/under authorized cost, construction cost to 5-foot line, and construction cost outside 5-foot line), and AF Forms 1178, 1178A, and 1178B. The A/E shall provide a recommendation on the contracting strategy including milestones and assumptions.

*Add* the following ***supplemental information*** to **Part U, "Safety Hazards Analysis", Paragraph 3.3, "35 Percent Submittal":**

Since there is no 35% Submittal for Air Force projects, resolutions (elimination or control) for each hazard identified in the Hazards Analysis must be provided in a "Basis of Design" interim submittal prior to the 90% Submittal.

*Add* the following ***supplemental information*** to **Part X, "Specifications"**:

**SPECIFICATIONS:** As part of the required edit of guide specifications, the A/E shall incorporate all pertinent Air Force criteria.

*Add* the following:

**PRE-PROJECT DEFINITION CONFERENCE:** The A/E will be required to participate in a Pre-Project Definition Conference at the project location to discuss and clarify the scope of this project. During this site visit, the A/E will be given any available Government furnished information and provided the opportunity to ask any questions regarding the design services.

As a minimum, the Pre-Project Definition Conference will include the following activities:

a. Refine project scope and workplan.
b. Schedule the field trip interviews.

c. Interview designated user groups and key decision makers to establish project goals and direction
d. Arrange the work session logistics.

**SITE INVESTIGATION/USER DISCUSSIONS:** The A/E shall visit the site to gather all necessary site information, review User operations and discuss User needs.

**SITE INVESTIGATION/CHARRETTE:** The A/E shall visit the site and gather all necessary site information, review User operations, and discuss User needs. In addition, the A/E shall conduct a Charrette (intensive problem solving effort, including user interviews, completed in a specified time period) to determine and document all criteria and requirements. The A/E shall prepare a schematic floor plan showing all rooms and space requirements during the Charrette and shall brief this floor plan to the AF Design Manager and SOUTHNAVFACENGCOM prior to completing the Charrette.

**SITE INVESTIGATION/DETAILED DATA:** The A/E shall visit the site and gather all necessary site information, review User operations, and discuss User needs. In addition, the A/E shall prepare the following data:

a. A written statement of the project goals.
b. A comprehensive graphic analysis of the project site, the surrounding context and climatic information.
c. An analysis of existing facilities which are directly impacted by the construction of a facility or the deployment of a system.
d. A compilation and analysis of all descriptive and statistical data regarding the proposed user group(s) that addresses function, activities, and major equipment to be accommodated.
e. Concepts/idea diagrams for implementing the goals and objectives of the project.
f. Summary statements of the unique aspects of the project design problem.
g. An action list of required follow-on items that must be pursued in order to produce a complete project definition package.

**OPERABILITY AND MAINTAINABILITY REPORT:** The A/E shall prepare an Operability and Maintainability Report using Engineering Technical Letter (ETL) 88-4, "Reliability and Maintainability Design Checklist", dated 24 June 1989, as a guide. The report shall specifically address operability and maintainability in the following areas:

1) architectural elements and site work
2) electrical and mechanical system selections
3) roofing system selection
4) water and wastewater systems
5) corrosion prevention and control

**COMMANDER/SENIOR LEVEL BRIEFING:** The A/E shall develop as part of the Final PD submittal, professionally prepared presentation boards depicting design development in layman's non-technical terms and descriptions. The briefing will provide a discussion of the Final PD and parametric cost estimate documents. The briefing is considered an important part of ensuring user involvement, obtaining high level approval,

and avoiding changes later in the design process. The A/E shall use senior level personnel to make the formal presentations. The briefing shall be held at the Base for the User, the Host and Requiring MAJCOM, Base representatives, AF Design Manager, and SOUTHNAVFACENGCOM.

**RELIABILITY AND MAINTAINABILITY CHECKLIST:** The A/E shall complete the "Reliability and Maintainability Checklist" contained in ETL 88-4 in accordance with the requirements contained therein.